October 1990 Vol 7 no 10 $3.50*

$2

NEW! Education Column

The Australian COMMODORE and AMIGA REVIEW

3D Text Animator
vs
Credit Text Scroller

Deeper into BBSing

Using Discovery

C64 / GEOS column

Game reviews:
Chrono quest
Imperium
Centauri Alliance

Kawai Funlab
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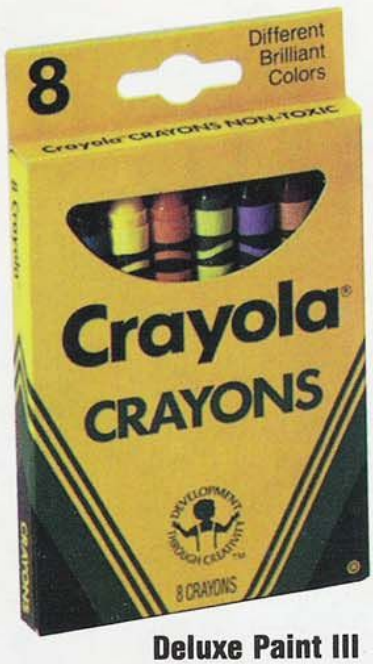
Registered by Australia Post Publication No NBG 6656

*Recommended retail price

A Graphic Demonstration



Deluxe Paint III
has 32 colours* and costs $199.00

Digi-Paint 3
gives you 4096 colours and costs $119.00

Get the picture?

*In some modes an additional 32 half-intensity shades are available.

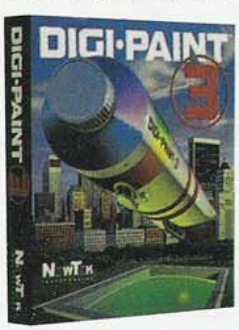
Digi-Paint 3 is a trademark of NewTek, Inc. CRAYOLA, chevron and serpentine designs are registered trademarks of Binney & Smith Inc., used with permission. DeluxePaint III is a trademark of Electronic Arts.

Which one of the artistic tools pictured here would a child choose? The answer is obvious, the more colors the better. The choice is just as easy when it comes to Amiga paint programs. Digi-Paint 3 works in the Amiga's powerful Hold-And-Modify (HAM) mode which allows you to paint using all 4096 colors simultaneously. By comparison, Deluxe Paint III (by Electronic Arts) operates in less sophisticated modes, restricting you to a maximum of only 32 colors*. What does this mean to your Amiga art? Simply put, the program with more colors makes the better pictures. But that's just one of the reasons Digi-Paint 3 is the ultimate paint program.

Other advanced features found in Digi-Paint 3:

- 14 drawing modes including colorizing, range painting, and texture mapping
- Powerful tools including: magnify, rotate, cut-and-paste, and variable transparency
- Anti-aliased fonts give sharp edges and a crisp television look
- Paint on canvases up to 1024 x 1024 with auto-scrolling
- Supports ***all*** Amiga display modes and resolutions
- Compatible with the Amiga 3000 and WorkBench 2.0

AmigaWorld magazine recently compared the leading paint programs in a head-to-head showdown. A clear winner emerged: "**Digi-Paint 3 is the one to beat for speed, versatility and professional applications.**" After six pages of detailed evaluations they concluded with, "**If you are really serious about owning only one paint program, we would have to recommend Digi-Paint 3.**"



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The Australian COMMODORE and AMIGA REVIEW

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Australian Commodore Review: 21 Darley Road Randwick, NSW 2031 Phone: (02) 398 5111
Published by: Saturday Magazine Pty Ltd.

Editor: Andrew Farrell
Entertainment Section Editor: Phil Campbell
Advertising: Ken Longshaw (02) 398 5111 or (02) 817 2509
Production: Brenda Powell
Design & Layout: Andrew Dunstall
Subscriptions & back issues: Andrew Dunstall (02) 398 5111
Distribution: NETWORK Distribution
Printed by: Ian Liddell Pty Ltd

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Editorial

Many readers have complained about our lack of C64 coverage. Indeed, the number of product reviews has decreased, reflecting the absolute drought of new programs released for this affordable machine. Even Berkeley Software have announced that some GEOS lines are now discontinued.

INFO magazine, a popular C64 magazine in the USA, has dropped the C64 all together and moved 100% Amiga. They cited the lack of new developments and the general trend toward the Amiga as the primary reasons.

At the *Australian Commodore and Amiga Review*, we will continue to support C64ers for as long as possible. Three regular columns covering GEOS, Graphics and Sound and the C64 in general are now running. However, we are still looking for technical articles, how-to stories and the like on the C64 - especially as a productivity machine (see how to contribute elsewhere in this issue). There are many fine packages out there which have proved to be very useful for all manner of work. So to all those who have written in recent weeks, yes, the C64 coverage has diminished - we can only write about what there is to write about!

Commodore UK are reported to be launching a revamped C64 in cooperation with a number of game companies committed to releasing a large number of game cartridges. The price point should place the machine in competition with other game consoles. No doubt Commodore Australia will be giving a similar re-launch serious thought - after all, Commodore's roots have always been in the entry level computing market.

In this month's magazine we take a look at telecomputing - this time we take a more hands on approach with snapshots from real BBS systems, guides to using Discovery and more serious information. First time users who find this all a bit heavy going should look back to our Annuals for the introductory guide to communications. An updated guide will be appearing in the 1991 *Amiga Annual* due out in early December.

In this issue we welcome Anne Glover with a new column on education. Correspondence to Anne from parents and students regarding educational issues is welcome. Please post them in care of the magazine. Anne will continue to review new education products each issue and discuss issues facing parents and teachers concerning today's educational needs.

Also in this issue you will find a Classified advertisement form. A classified ad section will be appearing in the coming issues so if you have something to buy, sell, swap or give away (fat chance) snip out the form and send it in. Alternatively, ring Andrew Dunstall on (02) 398 5111 to place your ad!

Andrew Farrell

GVP Announces a Technological Breakthrough...

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  - ✓ Removable media drive support. Automatically senses cartridge changes and informs AmigaDOS, ensuring safe and reliable use of removable media SCSI drives.
  - ✓ Allows Direct AUTOBOOT from Fast File System Partition.
- **New INTUITION COMPATIBLE SCSI installation** and "tuning" utility included. Major features include:
  - ✓ ICON and gadget based INTUITION interface.
  - ✓ Bad Block Remapping of hard drives.
  - ✓ Auto or manual hard drive partitioning and AmigaDOS formatting.
  - ✓ Read and modify existing RDB parameters on hard disk.
  - ✓ Simplest and Easiest SCSI installation in the industry.
- **Low parts count (through VLSI Integration) EQUALS:** lower power, higher reliability, longer life and ultimate PRICE/ PERFORMANCE! See TRADE-UP offer.

The Series II A2000 SCSI "Hard-Disk-Card"

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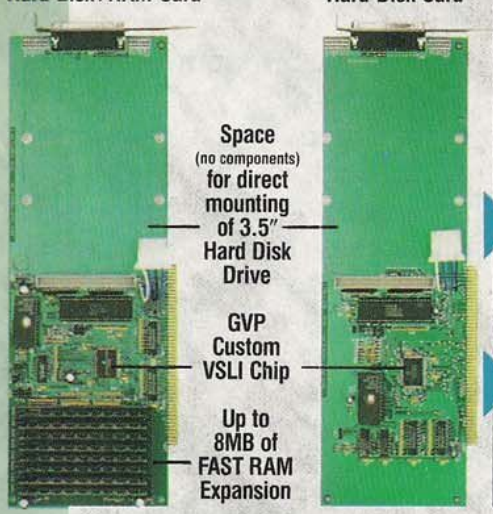

GVP's New *FAAASTROM* SCSI driver and installation software is also available as an upgrade kit for GVP's original IMPACT SCSI controllers, for ONLY $89.95. Offers major performance increase over previous GVP AUTOBOOT EPROMs.

New Series II 48MB Removable media hard disk drive. GVP now also offers the NEXT GENERATION removable media hard disk drive which offers increased capacity (48MB formatted) and major technological advances in cartridge air flow filtering design and robustness. Call for details.

SCSI TIMES 1990

The ULTIMATE Trade-Up Offer???

GVP today introduced its new Series II product line and announced a bold new trade-up program, which is certain to further bolster GVP's dominant market share in the Amiga hard drive market.

Details of GVP's new TRADE-UP program are as follows:

- For $199 plus $6 for shipping (Aus only) end-users can trade-up to the new GVP Series II SCSI "Hard-Disk-Card" (without drive) by simply sending in their present SCSI controller (from ANY manufacturer) together with a money order or certified check, payable directly to GVP.
- All trade-in controllers must be sent to GVP FREIGHT PREPAID.
- Owners of any GVP or Commodore SCSI controllers, are eligible for an additional $10 rebate, if they trade-in a FULLY FUNCTIONAL and working controller. These owners need to submit a certified cheque/money order for $195 only.
- For an additional $89, existing controllers can be traded-up to the new Series II "Hard-Disk + RAM-Card," which includes the 8MB FAST RAM expansion capability, populated with ZERO RAM.

"Let's Standardize"

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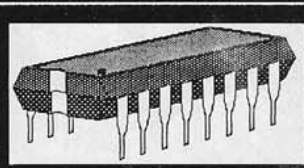
Ram Rumbles



Commodores New Baby! - The CDTV shown here with optional extras: infra-red remote controller, keyboard and mouse, joystick controller and disk drive. Yours for around $1000US.

Commodore's new Baby! - CDTV

Rumours abound concerning Commodores new CDTV, a marriage of computer, CD-ROM and television. And yes, the Baby! as it has been known in Commodore's development team offices, is not far off.

In essence, CDTV is a compact disc player, which although able to play the usual music discs, will also work as a CD-ROM. Inside the player, Commodore have cleverly crammed in an Amiga 500.

The Amiga can use the CD as a retrieval device, reading in programs, graphics and music - a true multimedia hardware package.

We should see instructional programs on cooking, sports, foreign languages and special learning for children, sophisticated electronic games, adventures and simulations never before thought of. The CD as a storage device opens some very exciting possibilities.

The CDTV can be expanded with a range of devices, many of them infra-red, including a keyboard and mouse. The unit will come standard with several enhancements above the usual Amiga 500 specifications. An additional 2K of non-volatile RAM will keep information such as preference settings, the system date and time safe when the unit is not switched on.

On the front of the unit is a port for a 64K personal RAM card. Each user will have one. It will contain high scores, saved games, personal information, financial data, or whatever else you happen to be using your CDTV for.

Hopefully, CDTV will arrive late this year, complete with dozens of titles, lots of rave from the press and a lot of people wondering what anyone would want one for. No doubt, before too long, CDTV will be as popular as the common CD, and as used as the fax machine. Price should be around US$1000. ❑

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Update

While MAX is away, the Pactronics office never sleeps. How could we when we have some HOT new products. WEB OF TERROR with spectacular graphics, is enough to keep anyone glued to their Amiga for weeks. If it wasn't for UNIVERSE 3. As commander of a space ship, you must make a return trip to Earth to negotiate for fresh supplies in return for fuel. However, a traitor on board is determined to destroy any chances of re-establishing peaceful relations with Earth. LOOK OUT!

You will be pleased to know that our stocks of Cameron Hand Scanners, both black and white and colour, have now been replenished. If you have been eagerly waiting to see these scanners in action, call us NOW.

For the Commodore heads who may think we have neglected them, we would never do such a thing. If you have been looking for a sophisticated word processor that is user friendly - WORDPRO is for you. WORDPRO also comes with TURBO LOAD and SAVE and integrated spell checker. Don't forget that MINI OFFICE II is still the best integrated 5 in 1 program available for the Commodore 64.

CIAO FOR NOW!

Advertisement

Dealer Profile

The Hard Disk Cafe

by Ross Morten

➥To say that Karen Williams is enthusiastic about the Amiga is probably the world's biggest understatement. A self-confessed Amiga "fanatic", Karen, along with husband Neil, owns a computer store in Sydney which is dedicated to the Amiga. Well, almost - because Commodore also sell MS-DOS machines they condescend to stock some MS-DOS software.

In spirit, the Hard Disk Cafe is an Amiga shop through and through. They've been in business for just twelve months, but in that time, have grown to be one of Commodore's most successful dealers.

Originally computer department manager at one of Sydney's major department stores, Karen found the rigid structure far too limiting. "I wanted to get into the new Amiga products," she said, "but the rigmarole to purchase anything was ridiculous."

Karen asked Commodore where they wanted a dealer, and the northern beaches was suggested. Friends and acquaintances said "You're crazy!"

Three of the basic tenets of successful retailing, according to the textbooks, are position, position and position. Perhaps they should start re-writing the textbooks - the Hard Disk Cafe is almost hidden in a back lane, not quite in the shopping centre at Mona Vale. In fact, if you didn't know where it was, you'd probably miss it completely! So what has made the Hard Disk Cafe successful?

"Our formula is simple," says Karen. "Enthusiasm, product knowledge and service. We pride ourselves on not being box movers like most of the bigger stores. We provide service. People come to us when they want advice - and stay with us.

"We also pride ourselves on being first. If you're looking for new applications, the Hard Disk Cafe will have them before anyone else. We're willing to take a chance where others sit back and wait.

"A good example was the Canon ION digital camera. We even showed Canon how to use it with an Amiga! The other thing that makes us different is our product knowledge. We're all Amiga enthusiasts, so learning new products is pure enjoyment, not a chore. We love doing it - and that's important".

The Hard Disk Cafe is now Commodore's largest single store outlet of Amiga 2000 and 2500 systems, mainly to the commercial and professional markets. With that goes a large volume of "applications" software - products to handle graphics, video production, music and animation.

"A lot of our sales are generated from our ads in the *Commodore and Amiga Review*," she said. "That's worked wonders for us."

Karen and Robert

You can contact the Cafe at: Shop 9 Akuna Lane, PO Box 879, Mona Vale NSW 2103 (02)979 5833 fax (02) 979 6629.

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Deluxe prices slashed!

ECP, distributors of Electronic Art's products in Australia, have slashed the prices of all programs in the *Deluxe* series from over $200 in some cases to a mere $99. Amazing as it may sound, *Deluxe Paint III*, previously around $249, will now sell for only $99!

Faster SCSI Controller with RAM!

Great Valley Products Impact have launched new versions of several of their well products including a new Series II A2000 SCSI/Ram (8.0) controller - a multi-function expansion adapter which provides a high performance SCSI hard disk controller as well as an 8MB RAM expansion board on a single A2000 expansion card.

Impact's technical specifications include an autoboot feature, autoconfiguring, transfer rates of up to 4MB/Sec synchronous, and an external SCSI connector for connecting up to seven external SCSI devices. In practice the board achieves 900 Kb/sec on a standard Amiga or 1.5 Mb/sec when using a GVP 68030 Accelerator. The board transfers 16 bit Direct Memory Access data to the onboard 16K disk buffer. Part of the performance improvement is due to a new VLSI chip design which allows dual port memory access to FAST RAM, eliminating typical DMA side effects during the display of complex graphics.

RAM is added in easy to plug in SIMM modules - from 0Mb to 8Mb including 6MB configuration. The package co-mes complete with a manual and detailed installation instructions, a flat 50 pin ribbon cable for connecting internal SCSI hard drive, and a one year factory warranty. Full support is included for virtually any SCSI device including CD-ROMs, tape drives, and removable bernoulli drives. The installation software is now a fully intuition driven utility - which will be a great help for new users.

GVP products are distributed in Australia by Power Peripherals (03) 369 7020.

New Horizons enhances ProWrite 3.0

ProWrite 3.0 is selling well - but New Horizons have already released an improved version - 3.1. The latest upgrade contains enhancements to the file requester and the font selection menu and incorporates a "speak" option.

The file requester now allows users to cycle through mounted devices in two directions. Additionally, path names and file names may be entered into an intelligent string gadget that recognises the difference between a path and a file so that only one string gad-

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A500	Monitor stand all-steel	$40
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EPSON	LQ-550 10" 24-pin 360 dpi hi-res 180cps printer with push tractor / paper park / semi auto-load	$620
DISKS	3.5" DSDD box of 10	$12
	5.25" DSDD pack of 10	$5
PD Disks	Public Domain Software - per copy (excl. disk) each over 500 disks to choose from.	$2

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get is needed. Also, all mounted volumes and assignments may be viewed and the requester can be toggled to show all files or just *ProWrite* files.

For use in teaching the visually impaired, *ProWrite* now has an option to speak selected text. It offers controls for voice tone, pitch, and rate and works with both phonetic and standard text. The font selection menu item now has a submenu that lists up to 18 fonts. The user may add fonts to or subtract fonts from this submenu using the font requester.

Other enhancements include increased macro command capabilities, enhanced ARexx support, and support for most of the new features in Workbench 2.0.

Minimum memory of one megabyte and Kickstart 1.2 are required. *ProWrite* is distributed in Australia by Computermate (02) 457 8388.

Macro68

DigiSoft, an Australian based software company, has released a powerful new assembler for the Amiga. Macro68 supports the entire Motorola M68000 Family including the MC68030, MC68882 FPU, and MC68851 MMU. Additional capability includes the Amiga Copper.

This fast, multi-pass assembler uses the new Motorola M68000 Family assembly language syntax, and comes with a utility to convert old-style syntax source code painlessly. The new syntax was developed by Motorola specifically to support the addressing capabilities of the new generation of CPUs.

Most features of Macro68 are limited only by available memory. It also boasts macro power unparalleled in product of this class. Many new and innovative assembler directives ease programming burdens. A special structure offset directive assures maximum compatibility with the Amiga's interface conventions. Full list-ing control including cross reference capabilities is included. A user accessible file provides the ability to customise directives and run-time messages from the assembler.

Macro68 is fully re-entrant, and may be made resident. An Arexx interface provides real-time communication with the editor of your choice. A number of directives enable Macro68 to communicate with AmigaDos. External programs may be invoked on either pass, and results interpreted.

Possibly the most unique feature of Macro68 is the use of a shared-library. The library is always resident, and allows the use of pre-assembled, resident include files for incredibly fast assemblies. These may be the standard Amiga files, or any header files may be used. Additionally, a configuration file may be defined that will setup a particular environment, or insert specific in all assemblies.

The program is compatible with the directives used by most popular assemblers. Output file formats include executable object, linkable object, binary image, pre-assembled symbol tables, and Motorola S records. Recommended retail price $195.00, requires Amiga 500, 1000, 2000, 2500, 3000 with at least 1 meg of memory.

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For video work, *TV-Text Professional* is genlock compatible. Drawing Tools include shapes, lines and borders. Other options are stencils, resize, rotate and flip, automatic recolouring of imported images. Automatic text justification and leading is provided or you can position according to a definable grid. Editing includes full undo, cut, copy and paste.

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News from the USA

Bars & Pipes Add-on Series

Blue Ribbon Bakery is currently shipping two add-on packages for *Bars & Pipes.*

With the Internal Sounds Kit, which includes the keyboard, instruments, and player, MIDI is no longer needed for composition and creation. The two disk package includes Spare Keys (an input tool which allows the entry of notes with either the mouse or the Amiga keyboard), the ECT SampleWare IFF Sounds Collection, and the Amigophone (an output tool which allocates simultaneous internal sounds on the fly).

MusicBox A, the second add-on accessory for *Bars & Pipes,* contains 17 tools and one accessory. Among the tools are Glissando, Event Filter, Repeat, and Stereo Dubler. True Colours, the only accessory, is a colour palette editor. Both add-on packages sell for US$59.95

Pixound & Hyperchord

Hologramophone Research has announced the release of two new products, *Pixound* and the *Hyperchord* kit. *Pixound* is a musical screen interpreter which uses both MIDI and Amiga internal voices. By translating the red, green, and blue content of each pixel into chords, *Pixound* converts pictures into music.

Because music can actually be composed and performed with *Pixound,* Hologramophone has added MIDI recording capacities for serious musicians who wish to generate melodic and harmonic sequences for use in other music programs. Designed for the novice or the professional, *Pixound* sells for $109 (U.S.)

Hyperchord is a riff sequencer which can use either MIDI or Amiga's internal voices. It allows the user to create riffs of up to 40 notes, which can then be stored and manipulated in real time. *Hyperchord* incorporates two modes: Dynamic and Play. Dynamic mode allows for the use of several tools to create anything from simple scale runs to complex "riff waves." Riffs can be varied by using *Hyperchord* functions such as smear, rotate, weave, reverse, and mix. In addition, a Grab-bag feature create 30 riffs based on a unique set of algorithms. The creations can then be stored and played back in real time in the Play mode.

The suggested retail price is $159 (US).

FAX for Amiga

MichTron has announced Fast Fax, a hardware and software package that features attributes of a Group III fax machine. The hardware features an 8Mhz 68000 processor, 32K Ram, 64K Rom and nonvolatile configuration storage. Fast Fax is compatible with CCITT Group III. The telephone intefaces at RJ11C; the host communication port is RS232C Communications Port supporting 19.2 bps. The software features a receive and send mode, auto scheduling, IFF to epson converter, transaction reports and small memory resident program (90k). Fast Fax sells for US$699.95.

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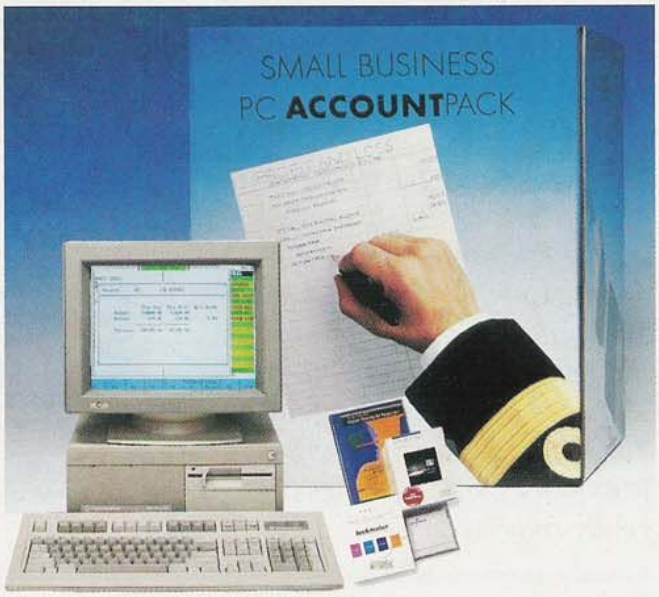

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KAWAI Funlab Music System

Amiga is pounding its way into Atari territory - be it rather slowly - as more and more people become aware of its amazing music capabilities. In the Professional arena, the software has almost caught up. For the beginner, as* Dave Rossy *discovered, things are really moving ahead!

Recently, there has been a significant increase in awareness of the capabilities of the Amiga for music applications. This has been led by the availability of several professional level MIDI software packages from companies such as Blue Ribbon Bakery, Passport and Steinberg. So the Amiga is beginning to make some in-roads into the professional music market.

However, the Commodore Amiga has the largest user base in the home market. Commodore has sold more of the Amiga 500 to children and families than any other brand of computer. To date, there has been no serious attempt by any supplier to sell music applications to this huge market. Until now that is.

Kawai is one of the major music instrument suppliers in the world. Their acoustic pianos are very well regarded professionally, and their digital pianos and synthesisers enjoy healthy sales in the professional market.

The marketing gurus in Kawai realised the significant size of this market of Amiga owners who are also the same people who would buy their portable, home keyboards. So together with the German music software house Steinberg, they have produced a self-contained package for Amiga users.

The *Kawai Funlab Music System* includes:

- a special version of the FS680 keyboard (colour coordinated with the Amiga)
- a MIDI interface
- MIDI cables
- the Steinberg *Funlab* software.

With this package, any Amiga 500, 1000 or 2000 owner will have everything needed to build a start-up MIDI music system.

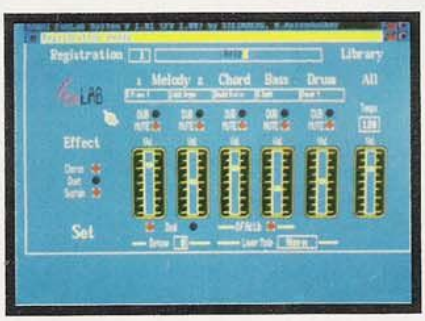
The FS680 keyboard is an interesting musical instrument in its own right. First of all, it has a built-in speaker system, and can run on batteries as well. Therefore, unlike the professional keyboards, it does not require external amplification. But many users may still wish to use their home stereo system to provide a bigger sound.

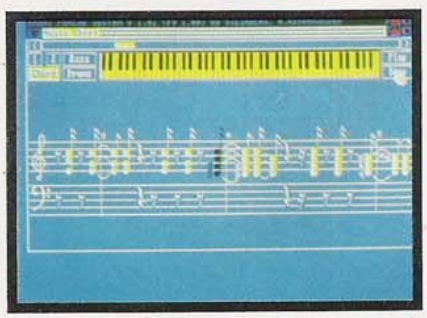
For those more technically minded, the FS680 produces sounds using 16 bit PCM (Pulse Code Modulation) sampled sound technology. Which means the sounds are quite impressive and rich. There are 100 different instrument tones, ranging from strings and pianos to banjo and koto. More adventurous users can also experiment with doubling sounds, such as combining a cello sound with an organ sound, as well as changing the parameters that make up an individual sound, such as the attack, sustain and decay parameters of the sound envelopes.

To make it more interesting, the FS680 keyboard also produces 100 different accompanying rhythms. A rhythm consists of a drum or percussion pattern with corresponding bass pattern. The 100 patterns available cover every conceivable musical style from rock and pop to jazz and classical. Players with a basic knowledge of chords can simply generate an accompanying drum and bass rhythm by playing a basic chord with the left hand while the right hand plays the melody using any one of the 100 preset sounds. There are four different accompaniment options to cater for different playing styles and situations.

The really interesting and unique feature of this keyboard is the One Finger Ad-Lib. The FS680 has 17 preset phrases for each of the 100 rhythms (that is 1700 different phrases). These phrases are recalled by just one finger playing one of 17 keys in the middle of the keyboard. Not only that, With the One Finger Ad-Lib option enabled, the selected rhythm pattern actually plays through a preset chord sequence, and each of the Ad-Lib phrases actually changes to suit the chord pattern! Literally, you only need one finger to play an interesting jazz riff, or even Ravel's Bolero.

The powerful part about all this is that the One Finger Ad-Lib phrases, the rhythm patterns and the chord sequences are all





user programmable. The keyboard also has capabilities to record three songs.

The FS680 is of course MIDI compatible, and this is where the Amiga and the software comes in. Connecting the FS680 keyboard to the computer is accomplished by simply plugging the compact MIDI interface into the Amiga serial port, and connecting two MIDI cables (also supplied) from this interface to the FS680. That is all there is to it. Now by booting up the Amiga with the disk supplied, the Steinberg *Funlab* software is automatically loaded, and the *Funlab* Music System is up and running.

The *Funlab* software provides many additional capabilities and benefits to the keyboard player. First of all, it allows the recording of songs in a multitrack fashion, that is using overdub techniques as in professional studios. The software also displays recorded tracks in standard music notation. Lyrics can be keyed in and displayed in time as the song plays. And the software can simplify the control of the FS680 keyboard through graphical interfaces. Such functions as editing sounds, selecting rhythm and One Finger Ad-Lib, as well as programming your own phrases and rhythm can be much more easily accomplished on the computer, and downloaded into the keyboard.

Three demonstration songs are included, and any of these can be selected and played without getting into the main body of the software. As these songs play, the screen displays a keyboard, and the notes being played in the songs are indicated dynamically with small black squares.

Jukebox mode allows playing of prerecorded songs on disks back through the FS680. There will be a selection of song disks available in the near future.

The main screen of the software is the sequencer screen. The *Funlab* sequencer software is basically a five track recorder, with one track dedicated to rhythm, ie drums and percussion. The other four tracks are labelled Melody 1, Melody 2, Chord and Bass, to make it easy to construct a piece of music.

The software communicates with the FS680 using standard MIDI conventions. However, no technical knowledge of MIDI is actually required to operate the software at all. For instance, to select the sound to record in each track, the user simply clicks on the sound box for the track, and scrolls through the list of FS680 preset sounds. This compares with most other software which requires the entry of program change numbers to select tones.

Once songs are recorded, they can be displayed in standard music notation. From this screen, the song can also be played, and the score will scroll in time.

During recording or play-back, a volume slider for each track allows the real time mixing of sounds as on a conventional mixer. There is also a master volume slider to adjust the overall volume. Each track can also be muted if desired.

Now to the fun part. Let's say we are recording a song with drums, bass, a string part, a lead melody and a counter melody. First of all, the tempo can be selected by clicking on the tempo window. Songs can be recorded in a slow tempo for ease of playing, and played back at the right speed.

To record the drum part first, we click on the Drum track, and the lower part of the FS680 keyboard now plays only drum sounds. Sounds cover the standard drum kit including kick, snare, hi-hats, crash and toms. When the record button is clicked, the in-built metronome starts ticking to the selected tempo. There are two lead-in bars before recording actually starts so that you can get into the rhythm. The drum sounds are then played and will be recorded.

If it is beyond your capability to play multiple instruments at the same time, do not despair. One instrument at a time can be played and overdubbed onto previously recorded sounds. That way, a complex drum part can be built up easily.

If you can't keep to the timing, *Funlab* will optionally "quantise" the notes you have played. That is the notes will be shifted automatically in time to the nearest beat resolution, which you can specify. For example, if the song you are recording uses a minimum of an eighth note (two notes to every tick of the metronome), then quantisation resolution should be set to eighth notes, and your timing will be accurate to the eighth note.

Once the drum part is recorded, we can now proceed to the bass part. This time, various bass sounds can be selected by simply clicking in the sound window for the bass track. When the record button is clicked, and after the two lead in bars, the recorded drum part will play as well (but can be muted if desired). So the bass part can be recorded in time with the drums.

By proceeding similarly, we can easily select the right sounds for the Chord track, and the two melody tracks, and record each track sequentially. If a particular section of the recording is unsatisfactory, the "Punch-in" feature allows selected sections defined in bars to be re-recorded without affecting the rest of the song.

When all tracks are recorded, it is then easy to experiment with different tempos, different sounds for each track, and also different volume mixes. This is the advantage of a computer based MIDI system over conventional tape based recording systems.

Once songs are recorded, they can be displayed in standard music notation. From this screen, the song can also be played, and the score will scroll in time. The notations are accurate and can be educational for the music student.

Songs can of course be stored to disk, and a "Music Dictionary" feature enables songs and associated parameters to be catalogued. There is also a search feature where partial titles can be entered and matching songs are displayed.

The *Funlab* software also includes a "Registration" feature which enables different keyboard setups to be stored on disk. This way, features such as One-Finger Ad-Libs can be incorporated as part of the song, and the recorded sequence will play in synchronisation with the FS680 keyboard's rhythm. Other keyboard setup parameters such as dual sounds, tempo and volumes are also stored.

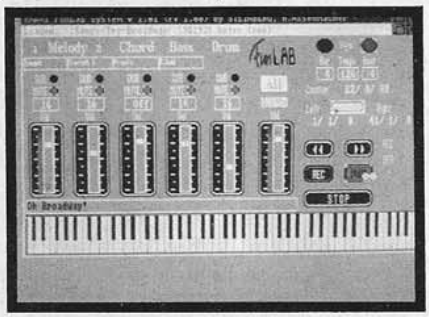
If you have recorded a riff or a rhythm on disk that you would like to download to the keyboard for use with the One Finger Ad-Lib, then you can do so as well. This is accomplished through the lyric editor, where instead of lyrics, a simple language is used to specify the introduction, fill, body and ending of the rhythm. This information is then downloaded to the FS680 through the main screen. While this function can be achieved on the FS680 keyboard itself, it is certainly much easier working graphically on a computer screen than pushing buttons and reading LED displays.

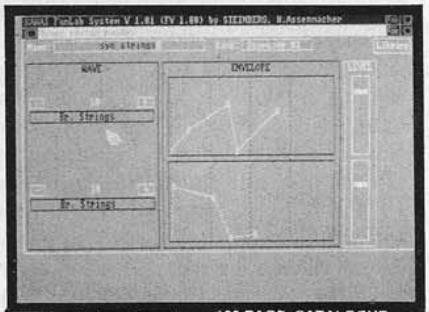
The *Funlab* software's Sound Editor feature also provides the ability to graphically change the characteristics of the sounds. Each preset sound in the FS680 keyboard is a combination of two sound envelopes, and using the Sound Editor, the shape of the envelopes and their relative volumes can be altered with the mouse. This allows a lot of experimentation in sound creation, and the results can either

be stored in the FS680's five user sound locations, or on disk, where there is no limit to the number of different sounds.

All in all, the *Funlab Music System* provides a very good introduction to the world of MIDI recording studios. It is an ideal extension to the Amiga, and provides a much more creative use than simply playing games. The software was especially written for the Amiga by one of the major music software houses. Steinberg actually created the *Cubase* sequencing software for the Atari, and *Pro-24* for the C64 and Amiga, both professional quality packages. The software is not designed for the professional musician, but it has more than enough features for the novice MIDI musician to get started with.

The FS680 keyboard is state-of-the-art in portable keyboards, and the software combination with the Amiga makes it ideal for families this Christmas. Everything required outside of the Amiga and monitor is included. Even the batteries are supplied. At under $1,000 retail, it is indeed very good value for money. ❑





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Getting into Discovery

by Blatz

- DISCOVER v.t. obtain sight or knowledge of.
Discovery noun.

In the Oxford dictionary, Discovery gets a mention - just another word. Well somehow that definition may fade into obscurity and even become anachronistic!

Certainly Telecom's Discovery allows you to "obtain sight or knowledge of", just as conventional explorers did with the unknown frontiers, scientists have for centuries pursued baffling secrets of our physical and biological surroundings, and many others have sought answers to challenges. In all those cases, though, the Discovery implied the capture, or revelation of the unknown, period. Telecom's Discovery turns that implication on its head - here is the way for you "to obtain sight or knowledge of" known information. Mountains of it, at your fingertips!

The latest Discovery magazine (Issue 3.) lists over 1,000 search selections covering nearly 400 topics. I don't intend to delve any further into the vast possibilities the databases offer, but rather focus on what you can accomplish in the messaging system.

The Discovery 80 messaging system is based on the TELEMAIL application which runs on tandem nonstop mainframes. Here you can not only reach other Discovery users, but you can use the system to deliver FAXES and TELEXES, not to mention the users of other electronic mail systems.

Using Discovery 80's online facilities you can type in your message, or using a simple text editor or WP you can prepare your text before the actual Discovery SESSION, during which you would use the "FILE UPLOAD" facility of your Communications Program (watch the new BYTEMOVES column for more detailed explanations of terms used here) to enter the body of your message. This latter method is especially recommended for lengthy texts for two main reasons:

1. It's CHEAPER!
2. The on-line Discovery 80 editor, while extremely powerful in certain ways is not the most easily mastered editor.

The second reason was included purely for the benefit of those for whom money is no object!

For those who are really intensive users of the messaging service there is also a BATCH facility which supports the off-line preparation of SEVERAL messages, including their envelopes, for batch uploading and subsequent transmission.

But there's more!, binary files can also be included in your message! This is especially convenient and economical where you need to broadcast the file and message to many recipients! Instead of having to arrange individual file transfers say, ten times, you simply place the data on the Discovery messaging system, addressed to the recipients who can then collect it at their leisure (and simultaneously! try doing that with the "conventional" method).

A Bit of Detail

I won't go into the actual keystrokes involved to get to the messaging service on Discovery 80, rather I'll deal with specific commands relating to three main areas of usage in the message environment.

I will assume that most readers aren't Discovery users, but the details provided will convey to the majority what can be done and the relative simplicity involved; those who are actual users will no doubt find the details ultimately useful. The areas I'll cover are HELP, SCAN, and READ.

HELP (and a bit on SYSTEM PROMPTS)

To users of the messaging service the following prompt is the indication that they can enter a COMMAND.....

Command?

For first time, or novice, users the most important response to remember at

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this prompt is simply....

?<ENTER>

which will present a screenful of valid commands. If help is required on a particular command, then a response...

? SCAN<ENTER>

will present several screens of good guidance on the use of the SCAN command, each screenful allowing departure from the HELP facility. (Any other valid COMMAND can be used in place of SCAN). COMMANDS have a GLOBAL effect and most therefore have ARGUMENTS.

Another prompt which appears on the system is:

Action?

This prompt always follows the text of a message.

Again HELP is available, this time listing the various valid responses which can be used here. ACTIONS only affect the MESSAGE which the Action? prompt follows and therefore ARGUMENTS are NOT MANDATORY, however in some instances are necessary.

SCAN

When mail is sent to a Discovery 80 user, it is captured in his MAILBOX. To see the contents of one's MAILBOX, SCAN at the Command? prompt will make the system reveal messages which have been received but not yet READ. The display produced is called a SCAN TABLE which sets out the message sequence number, and details about the date and time it was received, where it originated from, the SUBJECT matter (as specified by the SENDER), and how long the message is in LINES. The SCAN TABLE will also indicate what, if any, SEND OPTIONS, have been incorporated in the message (more on this later).

The SCAN Command also allows retrieval of other messages which have been FILED or WORKSPACES which have been SAVED. These variants will be discussed later. For now we will consider SCAN's effect on new mail only.

If you have a certain notoriety or other attractive attribute which results in your receipt of large amounts of mail, the SCAN Command will pause at every 24 lines before proceeding to display more message info. The use of the SCAN Command has no effect on the messages or their status; if, after displaying a SCAN table you wish to display it again, a further invocation of SCAN will re-display the details. (At this stage Discovery 80 users may care to advise me of the difference between the first and second SCAN tables - sender of the first message I receive gets instant microSTAR status; name in PAU, name on the AMIGA.FORUM BB, name on my infoline, maybe even a tangible reward. Check end of this article for address details.)

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What is Discovery?

Discovery is a service which is comprised of a number of quite powerful components:

➦*A VIDEOTEX SERVICE (formerly VIATEL) which in itself is a very comprehensive system, using the Prestel format to present betting, telebanking, teleshopping, interactive games etc.*

➦*gateways to other database services.*

➦*ASCII messaging/electronic mail system.*

What is impressive is the way all these facilities have been brought together into one focal service which allows the user to move between technically incompatible systems during a single session. While its fair to say the jury is still out considering its final opinion on the "front-end" structure, it would be unkind, even unfair, to the Discovery people not to acknowledge the cleverness of this initiative.

Furthermore, while it's a bit disconcerting to logon (especially with a script) only to find the "front-end" structure has been altered, one can possibly take heart that the Discovery people are still hard at work "fine-tuning" their system - but, please don't forget your users!

You have a prominent front page where reference to such changes must be made. I've heard the suggestion that the Discovery people ought to learn from some of the public bulletin board systems, and their user interfaces.

I can only recommend that any Discovery users reading this, who empathise with the situation and the suggestion, direct their requests "To: ADMIN" on Discovery 80.

READ

This Command allows the full message contents to be revealed. All the messages in the current SCAN TABLE will be presented. If desired, a specific message only, or a number of selected messages may be presented by including the sequence number(s) as the argument to the READ Command? As mentioned earlier, the Action? prompt follows each message. To move to the next message simply respond with <ENTER>. Options available at the Action? prompt will be discussed in a later article.

Just from the above overview you can appreciate that this system has immense capability, and I've only covered 2 of the 8 "BASIC" Commands!

In future articles I'll delve further into this messaging system's features, capabilities, and applications.

To get my eyes on your words, send letters to: BLATZ, C/- P.O. BOX 289,Campbelltown, S.A. 5074 OR on Discovery 80 simply type BLATZ in the To: field of your message.

If you'd like to keep in touch on the 'phone with my news and views, simply call the BLATZ-LINE on 0055 23281 (22c per 22sec's. - max.).

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BBS Etiquette

by Mel North

Keeping on the good side of your friendly local SYSOP is important. Keeping in good with other users also helps. Here's a guideline to what to do and not to do to make your stay a welcome one next time you call a Bulletin Board in your area.

1. Don't habitually hang up on a system. Every Sysop is aware that accidental disconnections happen once in a while but we do tend to get annoyed with people who hang up every single time they call because they are either too lazy to terminate properly or they labour under the mistaken assumption that the 10 seconds they save online is going to significantly alter their phone bill. "Call Waiting" is not an acceptable excuse for long. If you have it and intend to use the line to call BBS systems, you should either have it disconnected or find some other way to circumvent it.

2. Don't do dumb things like leave yourself a message that says "Just testing to see if this thing works". Where do you think all those other messages came from if it didn't work? Also, don't leave whiney messages that say "Please leave me a message". If ever there was a person to ignore, it's the one who begs someone to leave him a message. If you want to get messages, start by reading the ones that are already online and getting involved in the conversations that exist.

3. Don't use the local equivalent of a chat command unless you really have some clear cut notion of what you want to say and why. Almost any Sysop is more than happy to answer questions or offer help concerning his system. Unfortunately, because about 85% of the people who call want to chat and about 99% of those people have absolutely nothing to say besides "How old are you?" or something equally irrelevant - fewer Sysops even bother answering their pagers every day.

4. When you are offered a place to leave comments when exiting a system, don't try to use this area to ask the Sysop questions. It is very rude to the other callers to expect the Sysop to carry on a half visible conversation with someone.

If you have a question or statement to make and expect the Sysop to respond to it, it should always be made in the section where all the other messages are kept. This allows the Sysop to help many people with the same problem with the least amount of effort on his part.

5. Before you log on with your favourite pseudonym, make sure that handles are allowed. Most Sysops don't want people using handles on the system. There is not enough room for them, and they get silly games of one-upmanship started, it is much nicer to deal with a person on a personal basis. Last but not least, everyone should be willing to take full responsibility for his actions or comments instead of slinging mud from behind a phoney name.

Also when signing on, why not sign on just like you would introduce yourself in your own society? How many of you usually introduce yourselves as Joe W Smutz the 3rd or 4th?

6. Take the time to log on properly. There is no such place as RIV, HB, ANA or any of a thousand other abbreviations people use instead of their proper city. You may think that everyone knows what Sunshine VIC is supposed to mean, but every BBS has people calling from all around the country and I assure you that someone from Yeppoon has no idea what you're talking about.

7. Don't go out of your way to make rude observations like "Boy, this system is slow". Every BBS is a tradeoff of features. You can generally assume that if someone is running a particular brand of software, that he is either happy with it or he'll decide to find another system he likes better. It does nobody any good when you make comments about something that you perceive to be a flaw when it is running the way the Sysop wants it to.

Constructive criticism is somewhat more welcome. If you have an alternative method that seems to make good sense then run it up the flagpole.

8. When leaving messages, stop and ask yourself whether it is necessary to make it private. Unless there is some particular reason that everyone shouldn't know what you're saying, don't make it private. We don't call them PUBLIC bulletin boards for nothing. It's very irritating to other callers when there are huge blank spots in the messages that they can't read and it stifles interaction between callers.

9. If your favorite BBS has a time limit, observe it. If it doesn't, set a limit for yourself and abide by it instead. Don't tie up a system until the point where the Sysop has to ask you to log off - remember, there are other callers trying to get on the board. Especially don't make a lot of transfers of large files during the busiest hours for the board you're using.

10. Don't log on to a system as a new user and run right to the other numbers list. There is probably very little that's more annoying to any Sysop than to have his board completely passed over by you on your way to another board.

11. Have the common courtesy to pay attention to what passes in front of your eyes. When a BBS displays your name and asks "Is this you?", don't say yes when you can see perfectly well that it is misspelled.

Also, don't start asking questions about simple operation of a system until you have thoroughly read all of the instructions that are available to you. I assure you that it isn't any fun to answer a question for the thousandth time when the answer is prominently displayed in the system bulletins or instructions. Use some common sense when you ask your questions. The person who said "There's no such thing as a stupid question" obviously never operated a BBS.

Don't go out of your way to make rude observations like "Boy, this system is slow".

12. Don't be personally abusive. It doesn't matter whether you like a Sysop or think he's a jerk. The fact remains that he has a large investment in making his computer available, usually out of the goodness of his heart. If you don't like a Sysop or his system, just remember that you can change the channel any time you want. Besides, whether you are aware of it or not, if you make yourself enough of an annoyance to any Sysop, he can take the time to trace you down and make your life, or that of your parents, miserable.

13. Keep firmly in mind that you are a guest on any BBS you happen to call. Don't think of logging on as one of your basic

human rights.

Every person that has ever put a computer system online for the use of other people has spent a lot of time and money to do so. While he doesn't expect nonstop pats on the back, it seems reasonable that he should at least be able to expect fair treatment from his callers. This includes following any of the rules for system use he has laid out without grumping about it.

Every Sysop has his own idea of how he wants his system to be run. It is really none of your business why he wants to run it the way he does. Your business is to either abide by what he says, or call some other BBS where you feel that you can obey the rules. A bit of common sense and courtesy can make all the difference. ❑

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A quick look at Hayes (AT) Commands

by Tim Strachan

➦Below is a list of the AT commands, the common standard for telecommunications with modems. Knowledge of these commands will make life a lot easier as you try to get on to BBS systems (Bulletin Boards) or communicate via modem with friends. These commands can be typed directly into the screen of your Communications program. I've put some examples in below some of the trickier commands. "Carriage return" means "Hit the Return or Enter key" where it appears below.

Dialling a BBS

When you want to dial a BBS you just enter the phone number and all should be well... If you want to communicate with a friend, phone and arrange it first - you should both have the same Baud Rate chosen (from your Comms program's menu), and same number of data bits (usually 8), stop bits (1), and parity (usually none or N). Hence the 8N1 you see bandied about. Then one of you gets into "auto-answer" mode (by entering on your command line the command ATS0=1 if you want the modem to answer after 1 ring), and the other rings the number, with one of the AT commands, ie ATDP 1234567 or whatever). You can also switch from voice mode to Modem if you want, as described below.

When you connect, you should see CONNECT then the baud rate on the screen. And off you go - type dumb messages to each other, or upload/download files, or whatever. If you "upload" a file to your friend, warn him, and decide which "transfer protocol" you'll both use - XMODEM, ZMODEM (the most reliable and one of the fastest, though not all comms programs have it), etc. Then you select "Send File" or something similar, while your friend selects "receive file" or the equivalent, at his end.

Control Commands

AT ATtention prefix; precedes all commands except Repeat and Escape, ie, the two control commands directly below.

- A/ Repeat last command (A/ is not followed by carriage return). This is very useful for re-dialling on the command line.
- +++ Escape; terminates on-line mode and enters command mode; this command must be preceded and succeeded by a one second pause and is not followed by a carriage return.

Dialling Commands (must be preceded by AT)

D Dial: this command is followed by sub-commands that control the dialling mode (below) and then the phone number. The sub-commands are:

- P Set the Dialling Mode to Pulse (ie, the old-fashioned rotary dialling, as distinct from Tone below)
- T Set the Dialling Mode to Tone (much faster and more reliable - most telephone exchanges are changing to Tone these days. It's digital, man. So to dial Megadisc you'd enter: ATDT or ATDP 029593692. Note that it doesn't matter if you leave spaces in the command.)
- , Pause for S8 seconds (can be changed by changing the S-Registers - the default is 2 sec).
- ! Flash, go On Hook for 1/2 seconds
- / Wait for 1/8 second
- @ Wait for 5 seconds of silence
- W Wait for second dial tone
- ; Return to Command State after dialling
- R Reverse mode; switch to Answer Mode after dialling

The sub-commands can be mixed with the telephone number, so that complex dial and wait command sequences can be achieved. Alternatively, if just ATD followed by carriage return is entered, the modem will assume the connection has already been made manually and will connect directly in originate mode.

Other Commands

- A Answer call immediately w/o waiting for a Ring; for voice to modem call
- C0 Transmit Carrier Off
- *C1 Transmit Carrier On
- E0 Disable Command Character Echo
- E1 Enable Command Character Echo
- F0 Enable On-Line Echo (Half Duplex)
- *F1 Disable On-Line Echo (Full Duplex)
- H0 Go On hook, i.e. hang up (or simply ATH)
- H1 Off hook
- I0 Request product ID Code (130)
- I1 Request firmware revision number
- I2 Test internal memory
- L1 (or LO) Low speaker volume
- *L2 Medium speaker volume
- L3 High speaker volume
- M0 Speaker always off
- *M1 Speaker on until Carrier detected
- M2 Speaker always on
- 00 Enter On-Line State
- *01 Disable Remote digital loopback
- 02 Enable Remote digital loopback
- Q0 Enable display of Result Codes
- Q1 Disable display of Result Codes
- Sr? Display current value of register r
- Sr=n Set register r to the value n [eg, ATS0=2 means "auto-answer after 2 rings."]
- V0 Result Codes as digits
- V1 Result Codes as words
- *X0 Use Basic Result Codes
- X1 Use Extended Result Codes (ERC)
- X2 ERC + Dial Tone detection
- X3 ERC + Busy detection
- X4 ERC + Dial, Busy detect, X2 & X3
- *Y0 Disable Long space disconnect
- Y1 Enable Long space disconnect
- Z Reset all parameters to defaults

Notes:

1. Power On or Z Command reset values are indicated by " * "
2. Commands that are followed by a 0 can have the 0 omitted.
3. Often when you're typing messages and hitting RETURN, you'll find that you don't move down a line, which can be a bit messy. To do this simply press CTRL-J.

EXPRESS YOURSELF

Australian Amiga users are taking to AMOS like a duck to water. Never in the brief history of the Amiga has a programming language created such a ground swell of interest as AMOS. People who had not given a second thought to writing their own programs before have been amazed by the powerful array of commands in AMOS and by how simple they are to use.

With AMOS, you have full control of the Amigas hardware. There is no better, or easier to use language for music, graphics, sound or animation. Whether you're a complete novice or an experienced programmer, AMOS gives you the potential to create the game of your dreams.

AMOS is not, however, just for games. It has sophisticated data handling, full control over Input/Output ports, comprehensive mathematical functions and amazing logic controls. Using AMOS you can develop a database, structure a spreadsheet, work on a word processor or just cut loose and create the mega shoot-em-up to end all mega shoot-em-ups.

Full technical support is available through Pactronics to registered users, and for that special help, the Australian AMOS Users Club has been formed as a common forum to aid development of AMOS Programs.

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Letters to the EDITOR

Canon ION Camera Disks

Dear Ed,

Thank you very much for doing the story on the Canon ION camera, but you didn't say anything about the possibilities of there being an Amiga compatible disk drive that could read the disks and dump them directly to screen.

I recently bought an Intel 386 based IBM compatible. I would like to know whether there is any software to connect the Amiga as a slave to the 386. I realise that the use of the serial ports in transfer of ASCII files is readily available with a cheap lead, but I am looking for something that can transfer graphics between the two.

An idea I had while reading through one of your issues is that you don't state whether a game is available on IBM format in your game reviews. To do this would greatly increase the number of readers of this great magazine. I'm not suggesting that you make any major changes to the mag, just that, you having the best games reviews in Australia, you broaden your horizons a little. Furthermore, something I would like to see in more IBM games reviews, a statement of the types of graphics formats available ie: CGA,EGA,VGA and only state VGA, if, as in *King's Quest IV* they are true 800x600 graphics, with more than 16 colours. I'm sure such changes would be a greatly appreciated by the computing public.

Alastair Edginton
Mitcham,Vic

Editor: Graphics can be transferred using GIF (Graphics Interchange Format).

The files would be best swapped using CROSS-DOS to READ/WRITE 720k 3 1/2" DOS disks in your Amiga. There is no easy hook-up yet.

The Canon stores still video images not digital info - so you can only get them into a computer using a frame-grabber or digitiser.

Switch to MS-DOS?

Dear Andrew,

I feel that I must write this letter to inform your readers of my visit to the PC 90 Exhibition in Melbourne. I eagerly went along to the show, paid my hard earned $10 entrance fee then rushed through the door with baited breath. Being a dedicated Commodore user since my first Vic 20, C64, and now an Amiga I went in search of their stand. I went past stands displaying Atari, Apple, Amstrads and every other PC with names from A to Z. I searched high and low, every nook and cranny, but to no avail, Commodore were not to be found. Everywhere I went I was asked to look at new products, but when I asked were they compatible with the Amiga, I was given a look reserved for someone with two heads. After this bad experience, I will seriously think of selling my Amiga and entering the MS-DOS world, where hardware is nearly half the cost. And I would not be treated like an outcast, which Commodore seem to think we are after we have paid out our hard earned dollars. In closing I think Commodore should be ashamed for not showing at the PC 90 Exhibition.

Many thanks for your great magazine over the past years. It has been value for money.

P.R. Morris.
Collingwood Vic

Editor: Hardware at half the price? Maybe - but it's only half as interesting! The Australian Amiga Users Association held an excellent Amiga Expo in Sydney recently which was a big success. Someone in Melbourne should do the same.

Commodore commitment in question

Dear Sir,

I am writing to comment on Commodore's full page advertisement on Education in the July issue of your magazine. The advert begins by asking "Who wants to be at your school so much...?" and proclaims that Commodore is "Totally committed to Education". My experience as computer teacher at one of the largest Primary Schools in WA (our largest State) is that Commodore are all talk and no action. My school has been attempting to get assistance from Commodore to start using Amigas in our computer centre. Despite many months of writing letters, all we have received is a rejection.

As the Amiga is not yet used in schools in WA, and our Education Department's computer tender is currently up for renewal, I am amazed at Commodore's incredible lack of interest in both my school, and our State as an Educational Computing market. Virtually every week I receive mail from other computer manufacturers offering assistance in various ways to enable our school to install their particular machines. The presentation and professionalism of these offers is outstanding. From Commodore?....Nothing!

I fear that our schools will not end up with the best educational computing machine in their classrooms, rather they will install machines from companies who have had the foresight to realise the potential of the school market and have put their money where their mouth is. Commodore - you're going to blow it again!

John Stone
Murdoch WA

Buy a Bridgeboard?

Dear Andrew,

Firstly, congratulations on a great magazine, I never miss it. Secondly, as an Amiga 2000 user I am very pleased with my machine and its capabilities. My enthusiasm seems to have rubbed off onto three of my friends here at work who are thinking of buying computers for home. All of them have asked the question "is it IBM compatible?" and I have informed them of the option of buying a bridgeboard. As I have never used a bridgeboard myself, what I would like to know is if they really DO work and if so, how effectively. Will an AT bridgeboard run all the programs that an AT PC will or are there limitations, and in your opinion is a bridgeboard a better alternative for an Amiga owner than buying a second computer.

David Marsh
Mount Druitt, NSW

Editor: Bridgeboards do work well - look carefully at the price compared to a stand alone TURBO-XT! Compatibility is very good, only a few very unusual programs don't work - the greatest limitation is the lack of speed.

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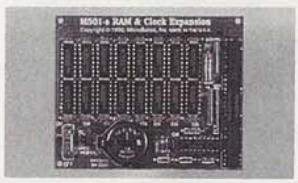

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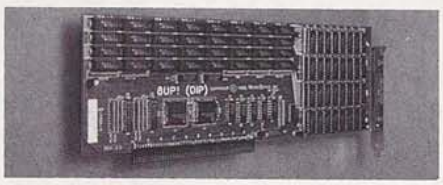

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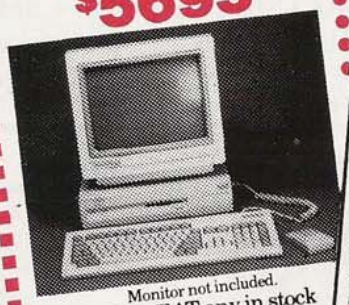

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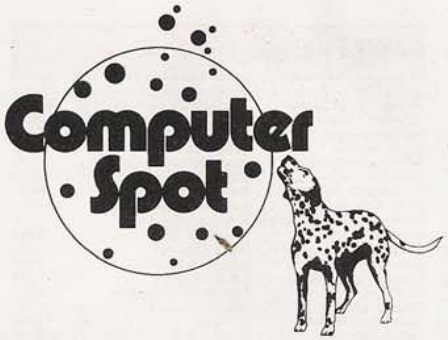

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VIDEO TITLING - WHERE DO WE GO?

CREDIT TEXT SCROLLER vs 3D TEXT ANIMATOR

by George Kimpton

➦For those video enthusiasts who love to pretty up their home videos or documentaries, the acquisition of an Amiga is almost like winning Lotto. The world is their oyster with all those fantastic titling and effects programs.

There certainly are some terrific programs, *Video Effects 3D, Pro Video Plus, TV Text Professional* to name a few, but they are not cheap. Many regular users will say yes, but they are worth every cent.

Now if you are one of those honest people who buy all your software and like many of us don't have a lot of cash to throw around, how do you get on?

If things are really tight you turn to the Public Domain for something like *TitleGen*, which isn't too bad but limited in the visual effects area. If you were lucky enough to get some overtime this week you might wander down to the local computer shop in search of a good titler.This is where Mindware's *Credit Text Scroller* and *3D Text Animator* come in. They are aimed at the low cost end of software and are intended to be a part of a complete integrated video system where it is possible to add modules as needed. AREXX is supported for interaction with other programs.

The system is built around *PageFlipper F/X* and *PageRender 3D*, neither of which I am familiar with, although some professionals speak highly of *PageFlipper* for animation work. *PageFlipper* will be the subject of a later review.

Both these programs have much to offer or certainly will in later versions when upgraded and considering the cost. They may not be in the professional league but will offer the home user some good 3D and Animated titling effects.

I have read and I agree with the premise that a measure of the user friendliness of a program is the ability of a user to easily operate it without referring to the manual. Neither comes out too well in this category and to make matters worse the manuals are well and truly out of date. Even booting sequences and the method of making up the working disk are incorrect in the manual. Whatever you do don't start without reading the Readme files on the disks.

Apologies are offered for missing facilities which have either been withdrawn or not included due to operating problems. We are informed that these will be included in later versions.

Both programs require you to produce a working program disk from the distribution disk as they call it. The working disk bears little resemblance to the original as with *Sculpt 3D* and takes around 23 minutes to set up. Thank goodness it is all automatic, although I was asked to put disks in drives a couple of times even though they were already there. These disks are self-booting when complete and minus some files used in tutorials carried out using the distribution disk copy. There is no copy protection on either disk.

So much for the negatives. Now what can these programes do? Let's look at them separately.

Credit Text Scroller

It is exactly what it says. It is primarily designed to scroll or slide text on and off screen. The text is imported from a text editor or word processor. No editing of the text is allowed even though fonts etc can be manipulated. Cut and paste facilities are available. After selecting the text file it is necessary to select a background screen in IFF format. This can be a blank or a picture of your choice. The full 4096 Amiga colours are supported along with all resolutions and either regular or overscan formats.

The distribution disk comes with a range of resolutions and formats including 2 bit plane forms for memory saving. These screens are in NTSC format and are not transferred to the working disk when made up.

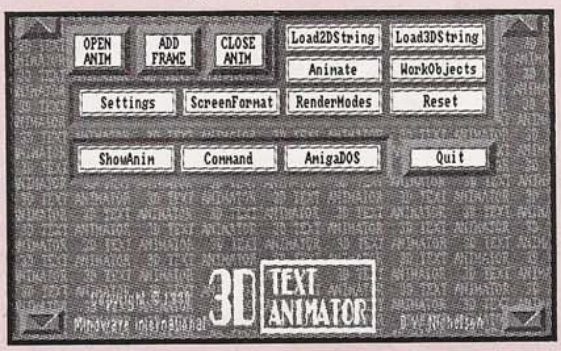
You will need to make up your own in the PAL format or use existing pictures as backgrounds. Be wary of using high resolution formats with large palettes as this program can be extremely memory hungry. More about this later.

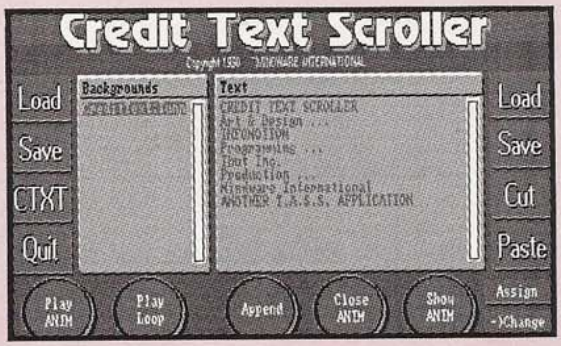
Fonts are selected from the usual workbench unless an assignment is made. Colour Fonts are supported. Different lines in the scroll can have different fonts and colours.

One very good feature is the easy access to help screens. There is no need to click over the button in question, all you need to do is place the mouse pointer over the button and press the help key. AREXX is included in the help info.

After choosing the

cont. on page 34





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text file and background you click on the CTXT button and away you go. By clicking with either the right or left mouse buttons you can control all aspects of text fonts, colours, justification etc. either on a global scale or by individual lines. You also control the number of "LinesPerFrame" the text will move in animation and the number of "LinesPerPage". All this is by using pop-up menus operated by mouse point and click.

Palettes and fonts are controlled in the same way with requesters allowing selection and adjustment. Bear in mind that the display inherits the colours of the background and the first four colours are used by the text. Palette colours are selected from a HAM type colour bar.

Tutorials are provided for each process and are fairly easy to follow but again be careful, check the ReadMe file.

Animation of the finished text format is by selection from the menu and a requester pops up allowing a choice of storage areas for the resultant animation. RAM is recommended in the tutorial.

A word of warning here. Do not get too ambitious. While the tutorial, which was low-res, fitted in RAM OK I wasn't so lucky with my own efforts. One serious flaw is that there is no escape if you run out of memory during plotting except to reset the computer losing everything.

I did a test using 24 lines of text (108 words) in high-res and limited to two bit planes and yet I ran out of RAM even though I have 5meg's of chipRAM. Even the demo text run in high-res and a one pixel creep per frame ran out of memory. The only answer in this situation is to save to hard disk. These problems are understandable when you consider that my 24 line effort produced over 900 frames and took two minutes to run.

The animations produced are in the standard Anim. format and can be run in other programs such as *DeLuxe Paint 3* where individual frames can be fine tuned. Scrolling can be over a fixed background, image (IFF) or even another animation. Provision is made for conversion to overscan and non HAM to HAM mode. Where animated files are very big it is possible to split an Anim into its constituent IFF images automatically. This is very useful for anyone who wishes to transfer to *PageFlipper* later. All in all a promising program if you have tons of memory and can wait for the upgrades.

3D Text Animator

The same procedure as mentioned above is necessary to produce a working disk, again taking about 23 minutes of laborious copying file by file. Tutorials again use the distribution disk but horror of horrors it wouldn't work first up. Finally it dawned it doesn't like the 68020 processor.

Checking through the book brought to light the following info. "Version to suit 68020 available but not enough room on this disk. Apply if needed".

Booting up and switching down to the 68000 everything worked OK. Even the tutorials worked and I ended up with some animated 3D text.

Fonts are a problem. Only one 3D font is supplied, others are obtained by use of Syndesis Interchange modules to convert them to the correct format.

2D fonts can be imported for a text string, that string only is converted to 3D by extrusion and not the font itself. These strings cannot be edited after conversion.

If you wish to convert an entire font this must be done using AREXX in the built in font editor and saved for future use.

Animation in this program does more than just scroll or slide text. It is possible to rotate text either as individual letters or words about the three axis X,Y and Z. 3D letters are in perspective form aligned to a pre-determined centre. This centre can be moved with the mouse pointer in a requester display and can produce some unusual effects.

This "centre" control is part of the animation capabilities along with the rotate controls. Rotation can be multiple and about more than one axis.

The text can also be made to appear to move towards or away from the observer. Letters can move independently and through different paths coming to rest to form words. Provision is also made to MOVE, ROLL, SPIN and FLY the text or letters. Backgrounds are colour only but can be any of the 4096 Amiga colours and can be in any of the usual resolutions with overscan. Control of bitplanes is allowed. Provision is also made for using full, half or quarter screens.

Rendering speed can be controlled by using either a filled, outline or wireframe format and dithering can be either on or off. Lighting is controlled by mouse in a requester. The animation is initiated from a requester which also sets up the rotation, direction and frame number. After saving the animation can be viewed either as a one off or a "forever" which is exactly what it is. I could not find any means of stopping it once in motion apart from resetting the computer.

Again a promising program with a few limitations and bugs which Mindware promise to fix. I don't know what possesses a company to release programs that are not finished, it only creates frustration and annoyance particularly when the manual corrections are so extensive.

These two programs are good examples of what I have been saying for a long time. We need places where we can go and try programs to see if they do what we need. How are we to know if these are important unless we try them?

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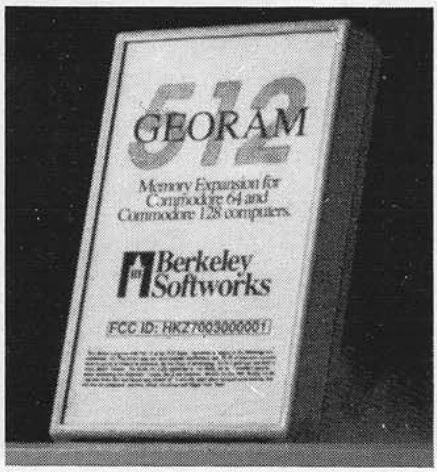

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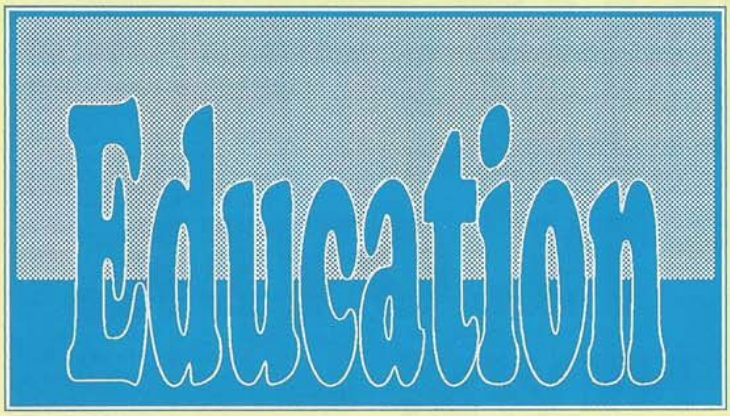

by Anne Glover

Selecting the right educational software for your children

➦As the range of educational software for the Amiga slowly expands, the problem of making the right choice for your child begins to emerge.

Most computer shops or the relevant department in the large stores now have a number of items of Amiga software available for educational use. As well, the ever growing software mail order industry also provides parents with a huge range of alternatives in educational material.

Our access to suitable software is no longer the dilemma we faced in the past. Instead of too little choice, parents find themselves confronted by an array of educational software which may or may not meet the particular needs of their child.

Here are some possible pointers to the selection of educational software:

1. The needs of the child.

Before selecting any educational material, you should look at the needs of the child. Although this may appear quite daunting there are a number of simple things to look for.

Every child will broaden their horizons and their opportunities if they are computer literate. Any piece of software, even the dreaded "games", will achieve this to a degree. Certainly your child will have no fear of the hardware - that in itself is an accomplishment if you look at some of today's adults.

Every child needs to be literate, articulate and numerate. Many pieces of software will help your children improve their skills in these areas. The software should give you some information with the packaging as to whether it seeks to address one or more of these aspects.

In this competitive age, no child will attain their full potential without a healthy level of self-esteem. Software that allows the child to make decisions, take responsibility for their actions and be rewarded with positive outcomes will build self-confidence.

Try to determine any specific needs your child may have. Maybe their fine motor skills could be lagging slightly, or an older child may be good at reading but reluctant to sit still long enough to become an even better reader.

Parents know their children better than anyone and can often identify any problems. If you watch your child and think carefully about him or her, an astute choice of software can potentially remedy a situation before it becomes a problem.

Make your child's needs a top priority when selecting educational software. Shopping without the little dears will often be helpful in this situation, as will the mail order brochures that give details as to content.

2. Find out what is available.

Obtain a listing of the educational material available from the various software distributors. Write to the organisations dealing in education software listed in this magazine and ask for their brochures or catalogues.

Try to obtain descriptions of the software rather than just titles and prices. The price lists will come in handy later when you have decided what to buy. You may notice a big price difference between distributors, especially if postage charges are included.

It is often very worthwhile doing a bit of comparison shopping. The price list will also help to tell you if the sale is really a sale! Being an informed consumer will mean you are more likely to get what you want at a reasonable price.

3. The interests of your child.

However educationally correct your choice of software, it will not enhance skills if it is only given a cursory glance and then rejected. Whether your child is into *"Turtle Power"* or worlds of fantasy, always remember that the medium the software uses is largely irrelevant.

The objectives of the software designer and the skills to be developed in your child are critical. The Super Heroes who flit across the monitor may seem of paramount importance to young Joan or Johnny, but they are merely facilitators to their learning.

4. Your current software library.

When selecting new software for your collection, try not to duplicate the skills that are being developed by your current programs. Try to find something that enhances or builds on your existing library.

Initially, look for software that meets the needs and interests of your child as well as complementing what you have already. A few careful selections will mean covering your requirements more adequately without any undue expense.

5. Features of the software.

The characteristics of the software will often determine how frequently and effectively the program will be used. Only when the software is used often enough will your hard earned dollars be considered well spent.

Instead of too little choice, parents find themselves confronted by an array of educational software

Some questions you should be asking yourself when shopping for educational software might be:

- Does it have a range of activities?
- Do these activities vary enough to provide stimulating alternatives?
- Can the activities be used to keep different sorts of kids happy?

cont. on page 38

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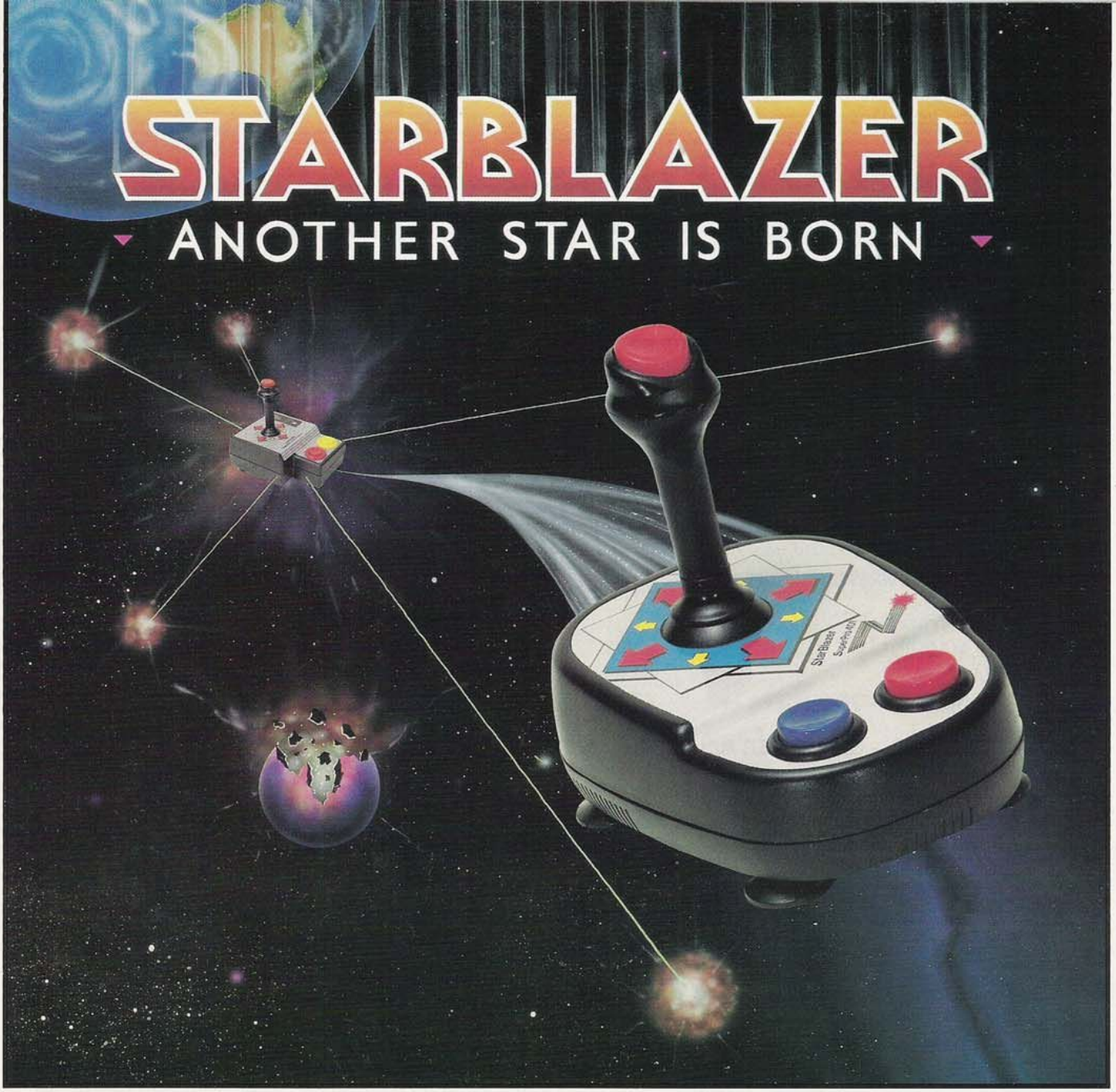

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- Will the software grow with your child?
- Can you envisage it being used over a long period of time?
- Will it extend your children or simply follow their development?
- Is it child centred, with the child heavily involved or is he simply a spectator?
- Does it encourage creativity and individuality?
- When mistakes are made does it make "rude noises"? (A young child can easily be disheartened by insensitive software telling him he is wrong.)
- Is it easy for the child to use it on his own?
- What specific skills does it develop and how are they developed?
- Can a few children use the program at once?
- Are you able to record their progress to build on later?
- If it is a "talking" piece of software can your kids understand it?
- Can your children's own spelling words, maths problems etc. be saved onto the program disk?
- Does the software require any extra hardware?
- Finally....is it FUN?

All of this indicates that the successful selection of children's educational software is not easy, given that sometimes we don't view the product before we buy, and are relying on the very limited amount of information on the packaging.

This is where a review of appropriate software may assist you in your choice. However, remember that a review will only form one part of your selection process. Only you can judge if it may be right for your child and complement your current software library.

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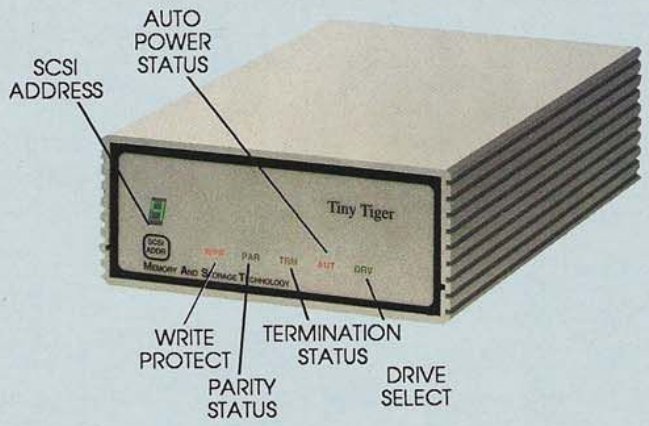

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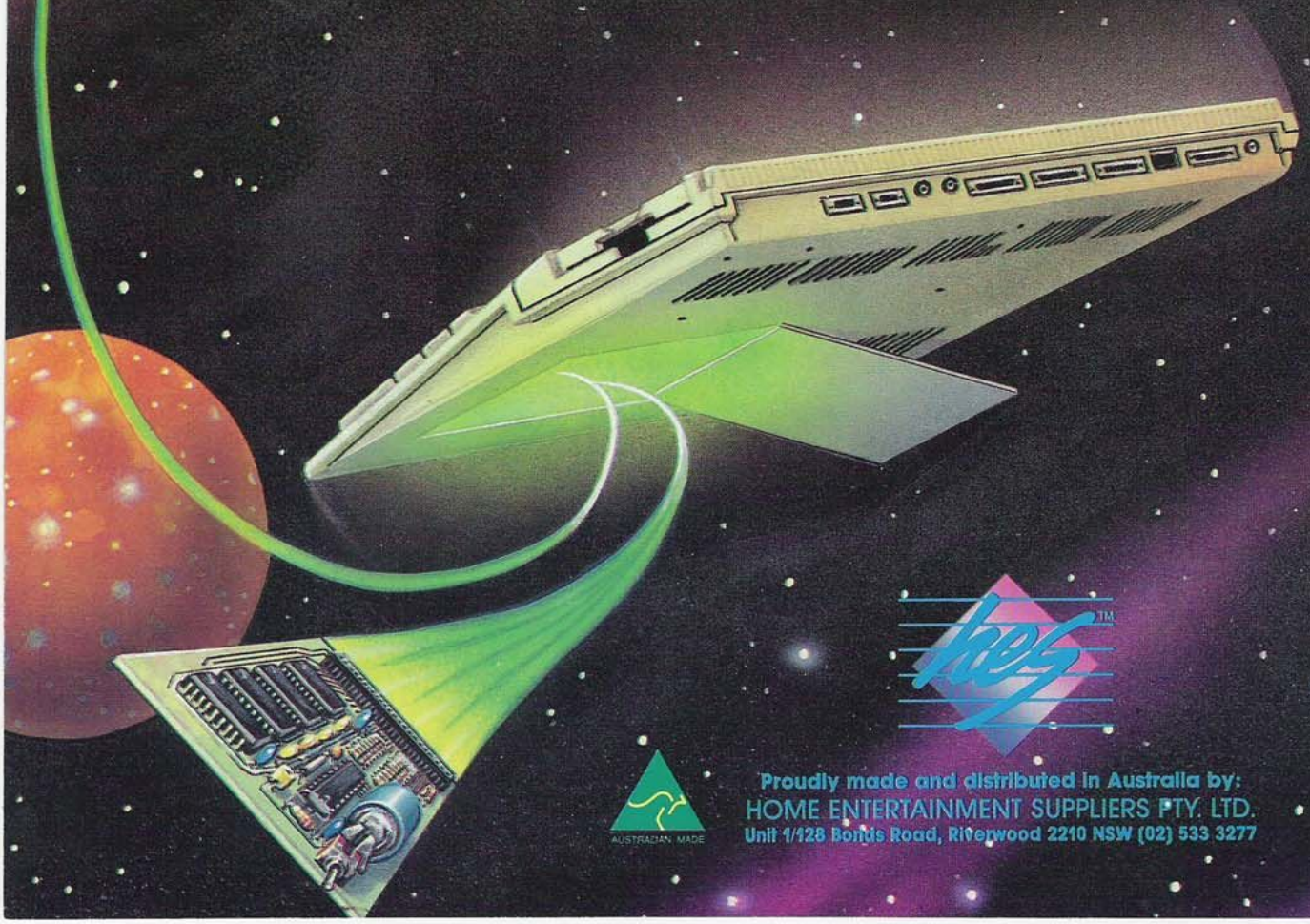

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KIDS COLLECTION

by Anne Glover

➦*Kids Collection* is a three disk set for children aged between three and seven. It is designed to be "educational, yet fun and easy to use". There are three games in the *Kids Collection* - one on each disk.

1.Bambino

This is a jigsaw puzzle game. There are 25 puzzles to choose from, ranging from Bambino (the teddy bear) to a ship or a beetle. The range is a bit unimaginative. The number of pieces in the jigsaw puzzles vary from eight to sixteen.

There are two levels of difficulty. At level one an outline of each puzzle piece is left behind as the puzzle is fragmented. This makes it much easier for a young child to determine the correct location of the puzzle piece.

At level two the outline is no longer shown, making it more of a challenge for older children or adults! The mouse or the arrow keys can be used to pick up the jigsaw pieces and place them in the correct spot.

Some great music is played after the puzzle has been completed correctly. However, a sound like a sick po-go stick makes you quickly aware of any mistakes as the incorrectly placed piece bounces back to the side. This sound may be disconcerting to many young children.

2. Memorise

In this game you are presented with six pictures, (e.g. a rabbit or a cloud) and are required to remember each one and its location in the required time.

The initial time the child is shown the six pictures can be adjusted from 20 seconds down to two seconds.

After the screen is cleared, each picture comes up on its own while the child (or adult) uses the mouse to place it in the correct location. No nasty noises here!

The number of sets of pictures tested can be varied from 3 to 24. A record of the number of mistakes is held at the top of the screen but it is probably not to obvious to very young children. If you don't point it out to them initially they will not be discouraged by it when playing the game.

Older, more competitively natured children may wish to use the scores to record their progress against their friends.

3.Associate

In this game, the child is presented with a picture (e.g. an umbrella) and a choice of four other pictures with which to associate it. The child uses the mouse to indicate the correct option. After a correct placement another picture comes up to be placed until all four have made a match.

The concept of association and the relationship between different objects is important for young children to absorb and understand. However, this is a very simple game, it would not be much of a challenge for a child over five.

Some general comments

Kids Collection assists children in the development of some important concepts and skills in an enjoyable way. This programme can help children

✔ develop problem solving techniques,

✔ recognise the relationship between different objects,

✔ determine a logical order in a sequence of steps,

✔ develop memory skills,

✔ make choices between options,

✔ develop their accuracy with the mouse and\or direction keys.

Each game is fairly basic and easy for the child to understand and operate quickly. Although, they may also become bored with it quickly too.

Kids Collection can be operated by children as young as four. As each game is on a separate disk, your Amiga may appreciate you only giving the child one disk at a time. This will reduce the continual reloading as the child changes his choice of game.

Different levels can be used in two of the games. Children could come back to these games when they are older and still find some challenge in them.

Some of the games could be played in turn with a few patient children.

Every decision is either right or wrong in the *Kids Collection*. Because of the nature of the game there is no allowance for the development of their creativity or individuality.

Kids Collection is quite different to a lot of the other software that is currently available for young children. As such, it must provide a viable complement to many software libraries.

Conclusion

The three games in the *Kids Collection* teach some excellent concepts to young children in a simple and enjoyable way. On their own they may not provide a stimulating time for long, but they could complement nicely some of your current software that is more factual and less concept oriented. ❑

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New Cli Window
1> ■

Coming to grips with the Amiga's CLI - a tutorial for beginners: Part 5

by Andrew Leniart

➡This issue I thought we would go over a couple of the less used commands in the CLI. The reason they are less used probably stems from the fact that a lot of people don't know what sort of information can be gleaned from them.

'Info' is, I believe, one that falls into this category. Usage of this command is simplicity itself. Just type its name in the CLI and it will do its stuff. Assuming we had just booted up with an unmodified version of our workbench diskette and typed in 'info' we would end up with something similar to this:

```
Mounted disks:Unit Size Used Free Full Errs Status
Name DF0: 880K 1645 113 93% 0 Read / Write A500 WB1.2
DF1: 880K 534 1224 30% 0 Read TextPro
Volumes Available: A500 WB1.2 [Mounted] RAM DISK
[Mounted]
```

What does it all mean?

Well, the first section is titled "MountedDisks". Strictly speaking, it is really referring to mounted (or connected) drives, not just the disks concerned.

Moving down, the "Unit" category lists the drive specifier, ie, any disk drive that you have hooked up to Amiga.

The 'Size' category lists the disk's capacity as specified by the format (covered in a previous issue) command.

The 'Used' & 'Free' categories display the number of blocks [1block=0.5K : 2 blocks=1K] used and the number of blocks still available.

The 'Full' category gives you information in the way of a "percentage" of the disk that has been used.

A zero under the 'Err' category tells you that no defective blocks (or errors) exist on your disk.

'Status' tells you the position that the write protect tab on your disk is in. In our example above, the disk in drive DF0: can be read or written to, whereas the disk in drive DF1: can only be read. 'Name' tells us the names of the respective disks.

Moving down to the next section, (Volumes Available) lists the names of the disks which are currently inserted in the drives. This is handy as you do not need to remove the disk from the drive to check its name.

With the arrival of the 1.3 upgrade came an extra feature for Info and that is the "DEVICE" switch. This allows you to get info on a single particular drive without being bothered with any others that are mounted or connected. So,

Info DF1:

would effectively give us all the relevant info we discussed earlier except that it would only be pertinent to drive DF1:

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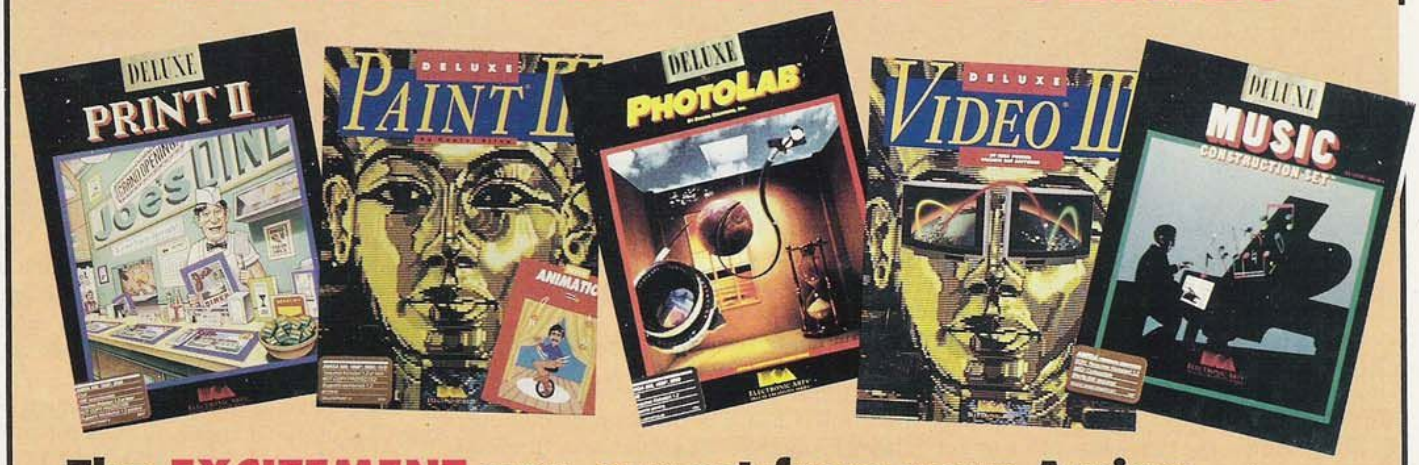

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Addbuffers

This is another command that is useful and has the potential to save time and make for a more enjoyable working environment.

Here is its command template..

Addbuffers DRIVE/A,BUFFERS/A

Addbuffers assigns a small or large buffer to a specified disk drive.

I've explained in previous issues that when you work with the Amiga, commands are loaded from disk as they are needed which is unlike the way IBM Clone machines work. This process, while achieving a saving in memory used by your machine, has the disadvantage of slowing down execution time when issuing commands. By the use of Addbuffers, we can relieve this problem a bit by allowing frequently used (small) commands to be contained in a disk drive's buffer. Once a command is in a drive's buffer, then it no longer needs to be recalled from the disk again. Consequently, the execution time of that command is speeded up considerably.

Here is how we use it. Let's say we wanted to assign an increase to our internal drive buffer DF0: We would type in "Addbuffers DF0: 20". This would effectively assign 20 blocks of RAM to drive DF0:. Note that 1 BLOCK = 512 Bytes! I should point out a couple of things here.. Firstly, Addbuffers is best used in the startup-sequence of a disk so that it is automatically executed each time you boot your work disk. Its purpose of saving time would be defeated if we had to type it in at each session.

Secondly, the Addbuffers command does have a small disadvantage. The buffer memory allocated to disk memory is taken from your system memory or RAM. Now that, on its own, is not the biggest disadvantage, however what is, is the fact that once you allocate memory to a disk's buffer, the only way you can get that memory back if you need it is to reboot the system. There is no other way to clear the drive's buffer once you have allocated that memory to it.

Last of all, I have found through experience that assigning more than a maximum of 20 blocks to any disk drive does not really improve the performance to any great extent. In light of this, it is probably best to just stick to the maximum of 20 or else you are probably just wasting memory.

ARP AmigaDOS Replacement Project

OK, let's take a break from commands for now and move onto something I think should be of interest to all CLI users.

Last issue I made a brief mention of the Amiga Dos Replacement Project (ARP) But what is the ARP and what can it do for you? The simple answer to that is "HEAPS".

Briefly, ARP is a "combined" effort of some 25 people including the beta testers who have been generous enough to do all the hard work and place the product in the public domain libraries. What it does is replace all the commands on your workbench disk with ones that are as near 100% compatible with Amiga Dos as you could get and do exactly the same thing as Amiga DOS commands do and MORE. The commands have been totally re-written in assembly.

This results in a decrease of their file size which is a bonus on its own as it, in turn, increases the space you have available on your disk.

More options are available with the ARP commands and one which I particularly like is the extended help feature. Here is an example of what I mean.If we wanted to find out the command template for the DOS command"Rename", we should all know by now that we can do this by typing:

Rename ?

The result after thumping on the return key would be:

From/a,TO=AS/a,QUIET/s:

Now this is where the ARP will supply you with additional information. Enter another ? at this stage and your Amiga would respond with:

Usage: Rename <wildcards> [AS]
<wildcards or dir> [QUIET]

I think that everyone would agree that this is heaps easier than getting out the ol' AmigaDOS manual and flipping through the pages to get some more info on how any particular command is used! Now this is but one example and I could give you many others, however I've always been of the opinion that the proof is in the pudding, so the best way to see exactly what I mean is to try it yourself.

Another advantage to using the ARP commands is that the authors have provided some extra commands which are highly useful yet not available on your standard "out of the box" workbench diskette.

Let's have a quick look at one of the more interesting ones - MOVE. The new ARP MOVE command is actually an enhanced version of the AmigaDOS "Rename" command.

MOVE is capable of doing anything that 'rename' can do but will also move a file from one disk to another. This is a far more efficient way of moving a file than say 'copy'ing the file across to another disk and then deleting it from the source disk.

MOVE will also accept wildcards (see the August issue for more info on wildcards) as will the ARP 'rename' command, making it possible to work on multiple files with one hit. The standard Amiga Dos 'rename' command will not accept wildcards so this alone is an excellent addition and potential time saver!

There are quite a few others which we won't go into here, but I can say with confidence that anyone who uses the CLI frequently will be very impressed with what ARP has to offer.

The authors of ARP even went to the extent of writing a program to help users install the enhanced commands on their system disks. Called "ArpInstall", this program may be run either from workbench or the CLI and is truly a dream to use. Virtually foolproof, the program gives information of what it is doing every step of the way and asks you to confirm you want something to happen before it continues with any process.

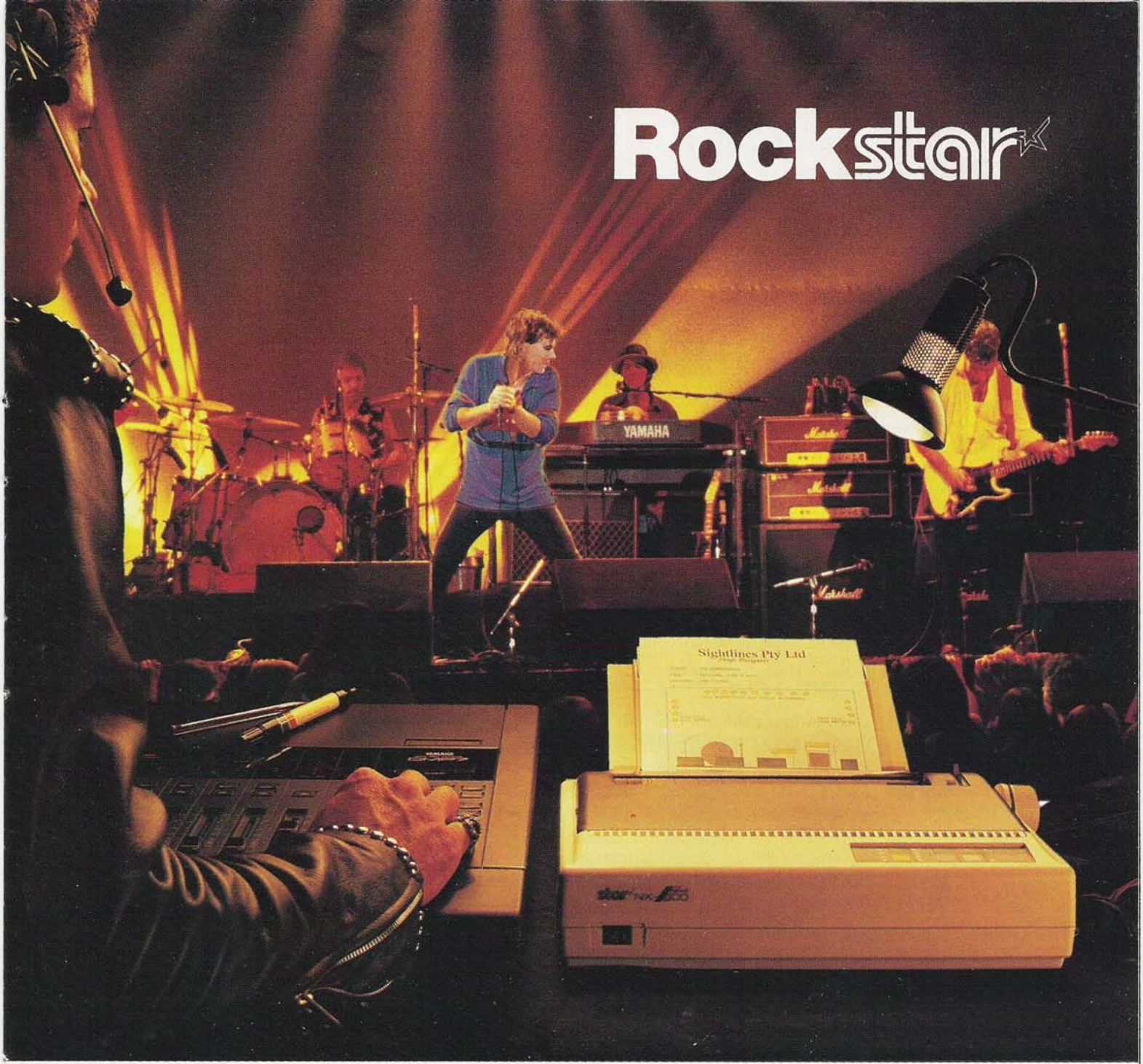
Where you get it

As I said before, ARP along with the Install program is available in the public domain and is freely distributable. Any good PD outlet should have a copy and it is certainly available from Prime Artifax, who advertise *AC&AR*. To get your copy, just write in and ask for ARP 1.3 or call (02) 879 7455.

Well that concludes this instalment of our CLI tutorial. I hope you have found it useful and got some mileage out of it. Next issue we'll look at a few more commands available to us and possibly some replies to questions asked by readers if you choose to respond to the invitation at the start of this article.

Till then, don't forget to experiment and read over what we have covered in past issues. Try everything and you will soon begin to see that Amiga Dos really isn't half as complicated as it first seemed to be.

See you next time... ❑



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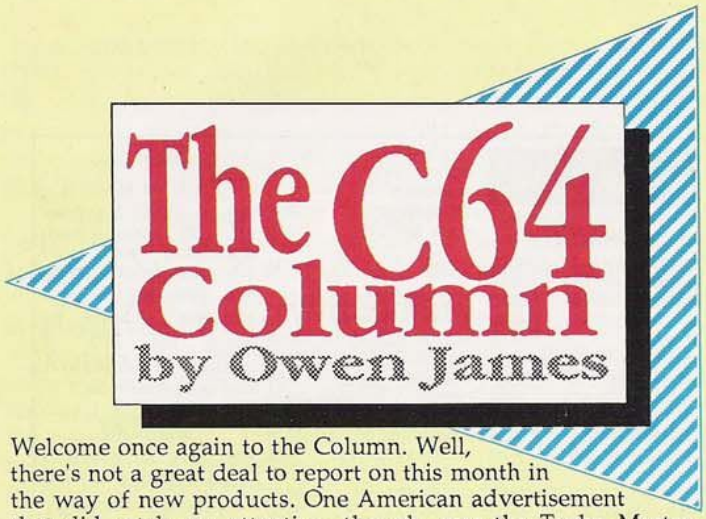

Welcome once again to the Column. Well, there's not a great deal to report on this month in the way of new products. One American advertisement that did catch my attention, though, was the Turbo Master CPU accelerator cartridge.

It promises to take the 64 from its regular 1 MHz clock speed up to 4.09 MHz. That means that everything happens four times faster. Disk speeds up by four times, GEOS works four times faster, BASIC runs four times faster, etc.

Hmm, sounds all right. If you've got a spare two hundred U.S. dollars then you might be interested. I haven't heard of any Australian distributors for the product, but if interested you might be able to contact Schnedler Systems of the U.S. direct on (704) 274 4646 (US number).

Reprogramming Software

As I mentioned in the last compelling column (!) this month's topic is Reprogramming Software. Perhaps your spreadsheet software uses colours that remind you of a Ken Done painting gone horribly wrong, or your spell checking program is riddled with spelling mistakes. Or you are not going to be psychologically complete until you see level three thousand of a difficult shoot 'em up.

Whatever the reason, read on! I hope this article will provide you with some insight into changing commercially written programs to suit your own needs and maybe even into learning to program.

The first thing you need is a machine language monitor. If you haven't one of these then you should seriously consider getting one. Many freeze framer and speed enhancing cartridges have ML monitors built in, which are perfect for what we're about to do.

You may also find it useful to know something about the HEX numbering system. Look at back issues of ACAR for articles on hex.

Let's begin with something simple - like changing the screen colours of a program. Before you go on merrily hacking away at a program you need to know how to reset the computer, and also the restart address of the program to edit.

The first requirement is easy. You can use the reset button on a cartridge, or the more daring of you might like to try your luck with a paperclip (just don't blame me if your 64 tries to recreate the atomic bomb tests!).

Restarting the program is a little more difficult. If it's a game you'll be changing, then look in the entertainment section of magazines like this and you should find pokes for a number of games. The SYStem call that follow the pokes is what you're after.

Now you're set. Armed with an ML monitor, a reset method, and a restart address, you should load the program ready for changing. Once loaded the computer will need to be reset (unless, of course, the program isn't self-running). Did the computer survive? Good.

Enter the monitor environment in the normal way (eg if using the Warpspeed cartridge then press the PI key, or The Final Cartridge III press F2 etc). Those of you who know a little about BASIC programming will probably know that the screen colour registers are decimal 53280 and 53281 (hex D020 and D021).

Machine language uses the same type of technique of BASIC POKEing except the colour code is loaded into a section of memory called the accumulator before it is dumped into the colour register. Use the ML monitor's HUNT or SEARCH facility to find any occurrence of the command STA #$D020 (this command may need to be converted into hex operand codes, depending on how the monitor prefers. Aren't fussy monitors a nuisance?).

If all went well you should soon see one or more hex addresses displayed on the screen. If not then try replacing STA with either STY or STX. Write down any addresses the monitor gave you for future reference.

Here comes the real fun! Try disassembling one of the addresses you wrote down (probably with the D key. Check the monitor manual for more info). Somewhere before the STA instruction you should see LDA (or LDX/LDY depending on which STore instruction you searched for).

You may have to search back some distance. When you finally find it you'll see the hash and dollar sign (#$) next to it, followed by two digits. These two digits are hex for the colour code. For example if the screen is to turn black the digits will be 00. If the screen is light blue (code 14) the digits will be 0E after it has been converted to hex.

Change these hex values to whatever colour code you like. Now restart the program with the system call or however else you can. Did the changes take effect? Don't lose heart if it didn't work out.

Check what you have done carefully then try again. Experiment on other programs also. You may have better luck with these.

Changing the text of a program is a very simple process. Load the program then enter the monitor as we did above. This time when you HUNT memory use a text string as the search criteria.

Check the monitor's manual for how to do this. Most monitors have a facility to change the text in memory - like some kind of edit command. If it doesn't then using the addresses the monitor replies with, POKE memory with the ASCII codes that can be found in the back of the C64 manual. Any of you ever bother to actually read the back portion of the manual?

It's not all techno mumbo-jumbo liberally sprinkled with computer buzzwords. Pull off the cobwebs and have a read because it contains some extremely useful information.

If you don't have an ML monitor, the above is probably more than a little uninteresting. For you unfortunate, deprived, disadvantaged (get the idea?) people, here's the way I edited software text before getting a monitor.

First of all, I found a word that had a spelling mistake and looked up the ASCII codes for the letters of the word (time to dust off the manual to find these). For the sake of simplicity, let's say the word we want to find is "at". The code for "a" is 65 and "t" is 84.

You would be REALLY silly to try to find these codes in memory by hand (believe me. I speak from experience!). I wrote myself a short little BASIC routine to do the searching for me.

Here it is with comments listed beside it. Don't include the brackets or what's between them if you use this program.

cont. on page 50

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```
10 REM MEMORY SEARCH
20 A=  (put the decimal address to start searching memory from here)
30 Z=  (make Z equal to the end address location)
40 L1=65 (the first ASCII code. If you want to be real clever you could do the conversion to ASCII code automatic)
50 L2=84 (code for the letter "t")
60 FOR X=A TO Z
70 IF PEEK (X) = L1 THEN 90 (if it finds "a" then check for "t")
80 GOTO 100 (nothing found yet)
90 IF PEEK (X+1) = L2 THEN PRINT"Text found at "X
100 NEXT X (increment the memory it's checking)
```

This is an extremely simple memory search program and you could easily change this to suit your own needs. Once you find the text, it should be just a simple task of POKEing new ASCII values into the text locations.

I put a whole series of routines like this together to make editing easier way back in the days before I had an ML monitor/assembler.

Once you know the address of the text, just POKE in the new ASCII codes. For instance, if we ran the above program and it told us the word "at" was stored in memory location 50000 and 50001 we would type POKE 50000, new ASCII code, POKE 50001, another ASCII code. You can see by this that a really elaborate ML monitor isn't necessary, although it would be a big help.

Most good magazines have a section for game cheats comprising a series of pokes and a system call. Ever wonder how these pokes are found?

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One of the more common types of cheats are those which disable sprite to sprite collision. The sprite collision detect registers are held at 53278 (hex $D01E). Again, load the game into memory and get into the ML monitor.

Using the HUNT or SEARCH command, find LDA $D01E (AD 1E D0 if your monitor prefers the data as hex data). Change every address it finds to something like LDA #$00 with NOP as another instruction to fill out memory a bit.

If you couldn't find LDA $D01E then try searching for LDX $D01E (AE 1E D0) or LDY $D01E (AC 1E D0). If these last two were found then change them to LDX #$00 NOP or LDY #$00 NOP respectively. When the game is restarted you should find that you're invincible.

I haven't gone really deep into the subject of reprogramming because time and space doesn't permit, but I hope this is enough to get you started. Remember - EXPERIMENT.

No damage can be done to the software if you don't save the changes back out to disk. Even if your fiddling around with programs doesn't seem to do anything useful you've still learned something ...I hope.

If you find you've got some kind of problem or are unsure about any of the above then write to me and I'll try and get back to you as quickly as possible. Please enclose a stamped self-addressed envelope if doing this.

Here's this month's tips, tricks and what-have-you...

If you use some kind of speed enhancing cartridge often then you've probably had the annoyance of having to remove the cartridge because some software doesn't seem to work with it.

Often the cartridge has a KILL type of command which allows the computer to behave as though the cartridge wasn't plugged in. If this isn't the case (like with Warpspeed), then try calling the ROM reset routine.

This is stored at $FCE2. With the example of Warpspeed you can enter the monitor with the PI key and type G FCE2. This will reset the 64 back to a clean state. Without using a monitor you can type SYS 64738 to achieve the same effect.

You can easily check from within a program if a printer is accessible. The 64 uses a system variable labelled ST. If ST is equal to -128 then the device is inaccessible, otherwise it will be equal to 0. As an example, here's a short subroutine to check if a printer is usable before trying to print.

```
10 OPEN 4,4: PRINT#4
20 IF ST=-128 THEN PRINT "CHECK PRINTER THEN RESTART":END
30 REM PRINTER MUST BE AWAKE!
```

It surprises me to find that a lot of people don't seem to know about the 1351 mouse's joystick mode. You can use the mouse just like a normal joystick if you hold the right mouse button down as you turn on the 64.

Just prior to the deadline for this column I visited a C64 display down at Auburn. It gave me a great chance to meet some interesting people and find out what they're using their 64s for. I was a bit saddened to hear from one of the organisers about how Commodore seem to have virtually left the 64 for dead.

It appears they're not officially going to kill it off yet, but then it sounds as if Commodore aren't prepared to give it the full support it needs.

Next month I hope to be looking at some of the possible marketing strategies Commodore should take, and also what the future holds for the 64. As always, I want to hear from YOU. Send all your tips, tricks, comments, questions, suggestions, ideas etc to me care of the ACAR, P.O Box 288, Gladesville 2111.

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See Up-Date column P3 for details on demo disks and printouts.

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WHILE STOCKS LAST

The Geos Column

by Bruce Lyon

This month we'll be covering the GEOS file system in the programmers section, an integral part of just about any program that uses data. In the user section, we'll be covering RAM expanders, pointing devices (mice etc), and a brief run down on telecommunications under GEOS!

Don't forget, if you have any questions about GEOS, whether they be technical or otherwise, that you would like answered, please write to the editor of ACAR and I will answer them for you. Alternatively, mailbox me direct on Discovery 40 (Viatel) MB 498730650.

User Issues

When you first unpack any GEOS software product, you will generally open the manuals, and read a section early on about minimum hardware requirements, and recommended additions.

The creators of GEOS, Berkeley, recommend two key items for GEOS to enhance its use. The famous 17xx RAM expander, and the 1351 mouse. Unfortunately, the 17xx RAM expander has never been officially supported as a product by Commodore Australia, and not everyone has a 1351 mouse (which costs over $70).

It's no secret that you can easily purchase a model 1764 RAM expander from overseas, or perhaps from an Australian mail order house, if you're lucky. Of course, you cannot expect local service backup, and Commodore US may take their time about servicing. Despite these risks, the RAM expander is a worthwhile add-on. In fact, GEOS was partly designed around its eventual release.

The RAM expander contains 256K of RAM, that's four times the total on-board a standard C64, all in a plug-in cartridge that plugs into the cartridge port of the C64 (the righthand side/larger port). It draws its power from the C64's normal 5V supply. With later model C64's (post 1987) there seems to be no problem running the unit on the Australian power supply. Ie: you don't appear to need a beefed up power supply, just the one that comes standard with your C64. This fact has been mentioned on several occasions in this magazine over the last few years.

I personally have been running a RAM expander with GEOS for two years now and haven't had an ounce of trouble. I know of five other people who all have C64 RAM expanders and haven't heard a single complaint.

GEOS contains all the necessary code to run the expander. Essentially, the RAM expander simply looks to the software as another disk drive. The big difference is that RAM is hundreds of times as fast as a real 1541 floppy, and runs lightning fast. Of course being RAM, when the power is off there is no mass storage on a RAM drive, so you must always save back to a real 1541 at some point. A good trick is to run your application code on the RAM drive, with your data on your real drive. The GEOS manuals all document suggestions about different setups to suit your requirements.

I would recommend the extra investment in a RAM drive if you use GEOS heavily for graphics purposes, desktop publishing, or database work. That is, if you're considering extra disk drives, consider a RAM drive.

You may have also have noticed that there is a new 512K RAM expander being released now in the US by Berkeley. Check with your local Australian distributor for when they will be stocking this item. There is an increasing number of quality mail order houses that offer the C64 owner access to all the latest software from the US, including GEOS offerings (software and hardware!).

Now about the mice...joysticks are fine! If you have a few of the readies (know what I mean as Arfa would say), a 1351 mouse gives you position sensitive mouse positioning. This basically gives a much tighter and faster response to the GEOS graphics interface. As good as the Amiga, as far as that score goes. It's a question of priorities.

Now about telecommunications - you may not know it but there is at least one 'public domain' program available that gives terminal emulation with file transfer capabilities under GEOS, ie : you don't have to leave the GEOS operating system, and runs a full GEOS user interface. I came across this package from a British magazine, and it works wonderfully. I want to research this further before I say for certain its public domain. It was available from a magazine disk service. Stay Tuned!

I was going to talk about 1571 and 1581 disk drives this month, but space doesn't permit, so I'll leave that till next time.

Programmer's Corner

The GEOS file system is many things for many purposes. Its main purpose is to provide an appropriate set of library routines for mass data storage. These are several major points that are quite innovative and distinctive in design about the GEOS file system.

GEOS includes a built in 'fast loader' and 'fast saver' for ALL files it runs. This is known technically as diskTurbo - quite appropriately. These routines operate at the block or sector level under virtually all circumstances (except large non-GEOS sequential files).

Berkeley claims a general speed improvement of 5 to 7 times. How much have you paid in the past for various fast loaders that use hardware to achieve this?

Berkeley have this built into EVERY program from the ground floor up!

The GEOS file system can handle GEOS special files called VLIR (variable length indexed record), as well as normal Commodore DOS files. Remember, you can still run ANY C64 program from within GEOS. GEOS will automatically revert to BASIC to load non-GEOS programs with diskTurbo if they are not too big!

The GEOS file system routines are or

ganised into "levels" of likely use - high, medium and primitive. Most of the time you will use high level file system routines, such as OpenDisk, GetFile, ChkDkGEOS, SaveFile, DeleteFile and so on. This allows access at the 'file' level of data.The intermediate level routines give more block oriented features, used to implement the high level file system calls by the GEOS operating system. This includes routines such as GetBlock, PutBlock, ReadFile, WriteFile, BlockAllocate, FreeBlock, FastDeleteFile etc. You get the flavour of access from the names!

The third level (lowest) are definitely for the intrepid, and for completeness only, are InitForIO, DoneWithIO, PurgeTurbo, EnterTurbo, ReadBlock, WriteBlock. You should needn't to access the primitives, except in unusual circumstances. I refer you to the Programmers Reference Guide Chapter 16 for more details on this if required.

Now to describe briefly the VLIR system. The basic file types GEOS uses are either sequential (ie up to 128 blocks of sequential data using the standard Commodore sequential track and sector scheme), or VLIR.

VLIR files are simply extension of plain sequential files, in that one VLIR file has a one block index table giving access to 127 track and sector pointers. Each pointer is the start of a sequential linked list of blocks, up to 127 blocks long. Thus a VLIR file can be a maximum 127*127 16000 blocks access, well beyond the 1541 storage capability.

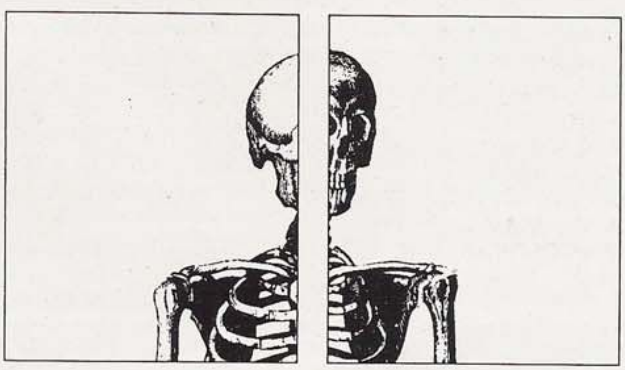
Each sequential chain of blocks in VLIR can be any length, and is referred to as a record. The application must provide sufficient memory to hold at least one record. Only one VLIR file can be open at any time.The VLIR routines allow discrete 'record' access to data eg : previous record, next, etc. You can directly access a specified one of 127 'sequential records'. Within a given record, you must search sequentially.

Thus you will perhaps understand my comments last month at the close of the column, that you have a compromise file system that gives you fast access to individual parts of the file, and sequential access within a record.

VLIR files can be used for all sorts of purposes. Eg *geoWrite* uses one sequential record per page, up to 60 pages per file (document). *GeoFile* uses more than one *geoFile* record per VLIR 'record'.

Applications can use VLIR records to hold code 'overlays' as mini-sequential programs. I covered overlays in an earlier issue. Essentially, a base resident control program can use the record oriented VLIR routines to load the overlays into memory as required, meaning very large programs can run, inside 32K! Now with a RAM expander, can you begin to see the possibilities ?

Next month, we'll look in some more detail at Icons, Menus, and event driven programming. Till then, enjoy GEOS productively! ❑



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C64 - Sound

Pushing redefined characters to the limit, this month we explore Multicolour definitions and then move onto high resolution bit-mapped graphics.

Until now we have only discussed characters in the "standard colour mode", where each dot on the screen may be displayed in a specific character colour or the background screen colour. The "multicolour mode" allows each dot to be in one of four colours, the background screen colour, or one of three other selected colours.

The multicolour character mode is made complicated by a number of factors, not least the problems of screen resolution and colour matching on different TVs or monitors. Multicolour mode characters may be useful to you once you've mastered the art of standard mode programmable characters. However, as their programming is one of diminishing returns, a great deal of preliminary pencil and paper work is required before getting to the keyboard. Therefore, we will only deal briefly with the topic.

Multicolour character mode is controlled by bit 4 in the VIC II register at 53270. It is turned on by setting this bit to 1 by the following statement

```
POKE 53270, PEEK(53270) OR 16
```

and turned off by setting this bit to 0 with

```
POKE 53270, PEEK(53270) AND 239
```

Once the multicolour mode has been enabled, each character on the screen may be displayed in either multicolour or standard mode. This is decided for each screen position by the value in the associated colour RAM location (55296-56295). If the value is 0-7, colours selected by the CTRL and Colour key combinations, the character is displayed in standard mode. If the value is 8-15, colours selected by the C= and Colour key combinations, the character is displayed in multicolour mode. This corresponds to setting bit 3 of the colour RAM location to 1 (bit 3 has a value of 2^3 or 8), meaning that multicolour or standard mode can be selected simply by printing the character(s) in the appropriate colour.

Exercise

Let's see how this works. First press RUN/STOP and RESTORE then enter the following:

```
NEW
10 POKE 53270, PEEK(53270) OR 16
20 PRINT "[<YEL>]THIS IS MULTI-Colour"
30 PRINT "[BLK]THIS IS STANDARD MODE"
```

Multicolour character mode is enabled in line 10. Line 20 selects a colour value of 15 to print the string in multicolour mode while line 30 selects a colour value of 0, giving standard mode. To look further at multicolour character mode, we must look at how the characters patterns are actually created.

For characters in multicolour mode, the horizontal resolution of each character is effectively reduced by half, to four dots. Each dot is composed of two screen pixels. Since each character is defined by an 8 X 8 grid of bits, each of these pixel pairs is coded by two bits. You should remember from Chapter 1, section 1.4, that with two bits four combinations are possible. Each of these combinations is used to encode colour information by:

Type	Bit Pair left	Bit Pair right	Colour Register	Location
A	0	0	screen colour (background # 0)	53281
B	0	1	background # 1	53282
C	1	0	background # 2	53283
D	1	1	bits 2-0 in colour RAM	55296-56295

Colours generated by the first three combinations (A-C) come from specific background colour registers (set with a value 0-15). Setting one of these registers to a different value will change the colour of every multicolour pixel pair of that type on the screen.

Because bit 3 of each colour RAM location is used as the switch between colour modes, only colours 0-7 are available for type D pixel pairs.

Exercise

After you have RUN the above program, directly enter the following commands

```
POKE 53282,0
POKE 53283,7
```

These commands respectively set background colour register #1 to black and background colour register #2 to yellow. On my TV, this gives readable multicolour characters. Experiment with the colour values to find a good combination for your equipment.

Let's look at the standard "A" character as it appears in multicolour. The pattern on the left is the actual bit pattern while the pattern on the right has been converted into types of multicolour bit pairs as described in the table above.

Figure 3-5

0	0	0	1	1	0	0	0
0	0	1	1	1	1	0	0
0	1	1	0	0	1	1	0
0	1	1	1	1	1	1	0
0	1	1	0	0	1	1	0
0	1	1	0	0	1	1	0
0	1	1	0	0	1	1	0
0	0	0	0	0	0	0	0

A	A	B	B	C	C	A	A
A	A	D	D	D	D	A	A
B	B	C	C	B	B	C	C
B	B	D	D	D	D	C	C
B	B	C	C	B	B	C	C
B	B	C	C	B	B	C	C
B	B	C	C	B	B	C	C
A	A	A	A	A	A	A	A

Take the left-hand pattern and convert it into multicolour bit types and check your answer with that in the right-hand pattern.

Exercise

Enable the multicolour character mode, PRINT an "A" character on the screen and, by direct POKEs to the colour registers, progressively change the colours of each multicolour bit type. Compare the result with the above diagram.

Because of the problems with multicolour characters on dif-

ferent monitors, it is not useful to provide further demonstrations. However, if you have an application for multicolour characters you should work through the following exercises. (The Commodore Character Editor supplied on the companion disk for this book has been modified to generate multicolour characters.)

Exercises

1. Develop three or four multicolour characters for different letters of the alphabet and use them to decide on the best colour combinations for your TV or monitor.

2. Once usable colours have been found, develop a full set of the 26 alphabet characters so that you may use these in your programs. Save them to tape or disk as discussed with standard characters.

3. One of the most common uses for multicolour characters is in the creation of images larger than the size of an individual character. In a similar manner to exercise 3 for standard mode characters, draw a multicolour image on a 16 x 16 grid, divide it into quarters and create the four multicolour characters required. Display the completed image moving about the screen.

4. Define a set of multicolour alphabet characters which may be "hidden" on the screen of a certain colour while standard mode characters are still displayed. This can be done by creating the multicolour characters using only one of the bit pair combinations and setting the associated colour register to the same colour value as the screen (this will not affect the standard mode). Write a simple game program to utilize this effect; for example, a quiz game where the player must guess words. Another idea is to use sprites, and check for sprite-background collisions with the "invisible" characters.

&

High Resolution Graphics

When using characters or character graphics from the keyboard, the screen resolution is limited to 40 columns by 25 rows (except for bar charts as we explained in Chapter 2). If you wish to use greater screen resolution for games, plotting graphs, or scientific applications (such as displaying spectral information), the C64 has the capability of drawing good high resolution graphics using its BIT-MAPPED MODE or pixel addressing mode (called BMM by Commodore).

Many other microcomputers have only a high resolution mode and do not have either the C64's graphics character set nor its programmable characters. Ever since the microcomputer made its first public appearance, there has been much debate about which graphics method was best: a set of special graphics characters on the keyboard like the PET, or the Apple's bit-mapped high resolution type. The C64 now has the best of both worlds and a lot more, since sprites can be used concurrently with high resolution screen graphics.

The problem on the C64 (there always has to be one!) is that programming bit-mapped graphics in BASIC without special commands such as DRAW LINE, PLOT POINT (SET), and Colour and FILL BLOCK is extremely time-consuming and very inefficient. This is really the area where small machine code routines are vital if you wish to do more than simply play. There are a number of commercially available programs and cartridges which "add on" some of these extra commands to the C64's BASIC, and they are very useful. Unfortunately, the value of these additions suffers from the problem that your programs may not be transportable to other machines which do not have this same "add on" facility.

Later in this chapter, a machine code routine to perform some plotting routines is given. This can be readily transported between C64s. Hopefully, the next version of the C64 which Commodore produces may have these extra commands built in.

How does high resolution bit-mapped graphics work?

In high resolution mode, each screen dot (pixel) may be selectively turned on or off, or, more correctly now that we use colours, each dot may be set to background (screen) or foreground (character) colour.

Since the screen consists of a character matrix of 40 X 25 with each character being 8 pixels square, if we use bit-mapping or pixel addressing this gives a matrix of 320 horizontally by 200 vertically on the standard screen.

In the C64, high resolution bit-mapped graphics are achieved in a manner similar to that used for user defined characters. You will remember from Chapter 3 that with the programmable characters we set aside a separate area of RAM for our new character set. This could use up to 2048 bytes to define the entire character set of 256 characters. With high resolution bit-mapped graphics each pixel dot on the screen corresponds to one bit in memory. Since there are now 320 X 200 bits to keep track of, we need to reserve 64000 bits or 8192 bytes of RAM memory to store the screen patterns.

\v\To complete the parallel with programmable characters, the bit-mapped screen is essentially constructed of 1000 consecutive characters which can be changed dynamically (during the program operation), creating the new characters which will light whichever pixels we desire for the dot, line, or graph on the screen.

As with characters, the C64 has two available modes of operation.

1. Standard Bit-Mapped Mode (BMM) divides the screen into a grid of 320 by 200 points with the penalty that you may only have two colours within each character space (8 x 8 bit area), one for the screen and one for the dots.

2. Multicolour Bit-Mapped Mode, like the other multicolour modes for characters and sprites, has half the horizontal resolution of the standard mode to allow the use of four colours for each screen dot.

This gives a grid of 160 by 200 points with one screen colour and three

possible dot colours available in each 8 X 8 bit square.

Both modes require 8192 (8K) bytes to store bit-mapped screen and this has to be put somewhere. Remember from Chapter 3 that the Video Interface Chip can only access 16K of RAM at any given time and that ALL the information needed for the video display (screen RAM, sprites,

and character patterns) must be stored in this 16K area. Also, there are four possible 16K areas or BANKs which can be selected. For the moment let's not worry about the BANK selection and leave the BANK set at the default area (BANK 0) pointing to the RAM at 0-16383. To use 8K of RAM for the screen bit-map, obviously we can only use the RAM from 8192-16384, since our program and the C64 will use the bottom half.

Normal characters cannot be displayed on the screen in bit-mapped mode without special programming which is beyond the range of this book.

b y Greg Perry

Bit-Mapped RAM

The location of the bit-mapped RAM is set in the same location as for the character base in the VIC II's memory control register at location 53272. This also controls the screen RAM location and must be set with caution.

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By referring to the table in the Chapter 3 (or in Appendix 1), it can be seen that to set the start or base location of the bit-map or character set to 8192, the pointer should be set by:

```
POKE 53272,(PEEK(53272) AND 240) OR CB
where CB = 8
which normally means you can use
POKE 53272,16+CB   ! DON'T DO IT YET !
(Reset to normal with POKE 53272,20.)
```

Important note: This pointer actually sets the "offset", in 1K increments, from the starting location of a particular 16K block of the computer's memory as determined by the BANK setting. Even though you can set this pointer to any value between 0 and 14 in steps of 2, in reality with high resolution graphics, the C64 will default all settings to either 0 or 8. Numbers above 8 would not leave enough RAM for the 8K bit-map, and with any number less than 8, the start of the bit-map defaults to 0, and in BANK 0 this is fatal. Writing to the bit-map will overwrite the main operating system variables, causing the computer to crash. In BANK 0, you must only use CB=8.

Bit-Mapped Operation

To change the C64 from normal character display to bit-mapped mode, bit 5 of location 53265 in the VIC II is set to 1

```
POKE 53265,PEEK (53265) OR 32
```

For most normal uses this can be done with

```
POKE 53265, 59
```

The C64 is reset to character display mode by

```
POKE 53265,PEEK(53265) AND 223
```

or

```
POKE 53265,27
```

In the normal character mode, a PEEK(53265) alternates between the values 27 and 155. This is caused by the VIC II changing the value of bit 7 (which equals 128) when it scans the video screen.

Exercise

Clear the screen.
Type on the top line

```
POKE 53265,59 and press RETURN
```

The screen apparently turns to a series of meaningless multicolour dots! But wait, what are all the alphabet characters doing there? What has happened is that you have enabled the bit-mapped mode.

Consequently, the C64 is displaying patterns generated by all the bits in the 8K block of RAM from 0-8192 because the character pointer is still set to 4 (defaulting to 0), putting the bit RAM in the bottom of the BANK. The bottom half of screen represents the top half of the bit-map, RAM locations 4096-8192, and contains the ROM "images" of both the character sets. The top half of screen comes from RAM at 0-4095 and is composed of the operating system variables, the "old" screen RAM and the program.

Take a close look at the top of the screen. Do you see various bits changing? You are actually "seeing" the C64's operating system at work!

If you type a number of characters, you will observe that only the background colour changes, not the actual patterns. We will see later why this is so. Clear the screen with the [CLR] key. What happens?

\v\Once you understand more about the operation of the C64, this apparently meaningless display will become more interesting.

Press RUN/STOP and RESTORE to return the computer to normal operation and we will continue.

4.2 Standard Bit-Mapped Mode

This mode is perhaps the least useful of the two since it allows only two colours, but it does give the best resolution and is also somewhat easier to program.

Colours

First, let's look at how the colours of the pixels are selected. Since there are only two colours available in each character space of 8 X 8 bits, if a bit is set to 1 the corresponding dot (pixel) will be ON and displayed in the foreground or character colour, and if set to 0, the dot will be OFF, displayed in background or screen colour. Since these bits which create the pattern are stored in the bit-map RAM, the area of RAM which was previously used to store the screen is not doing anything so it can be used to store the colour information. This explains what happened in the exercise above where characters were typed on the "screen" in the bit-map mode; the different values of the characters set different background colours.

Actually, the name "screen RAM" is now a misnomer since the pattern which appears on the video screen in bit-mapped mode is generated from the bit-map. However, we will continue to use the term to avoid confusion.

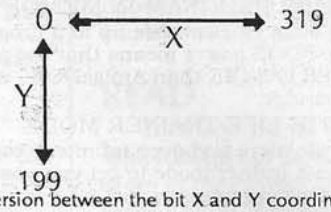
It works like this. The left-hand four bits (bits 7-4) in each byte of screen RAM hold the foreground colour while the right-hand four bits (bits 3-0) hold the background colour. It is possible to set each character area of 8 x 8 bits to a different colour, but in practice the background is generally set to one colour and the dots to another.

Ok, that's the easy part. Now let's tackle the more difficult part of drawing lines in our bit-map!

Constructing the Bit-Map

The bit-map consists of 1000 programmed characters, each of which we know are stored in RAM as eight consecutive bytes. This has to be related to an X and Y coordinate to map the screen as

Figure 4-1



The conversion between the bit X and Y coordinate and its byte location is an involved process. Simply use the formulae if you are not interested in how it works.

Each of the 25 lines which make up screen image is composed of 40\v\characters and since each character is stored as eight consecutive bytes, the first eight bytes are as follows:

```
 Character 0 Line 0
Byte Number     X,Y coordinates

   0        0,0 - 0,7
   1        1,0 - 1,7
   2        2,0 - 2,7
   3        3,0 - 3,7
   .          .
   .          .
   .          .
   7        7,0 - 7,7
```

and the next eight bytes are the next character to the right on the top line

```
          Character 1 Line 0
Byte Number     X,Y coordinates
   8         0,8 - 0,15

   9         1,8 - 1,15
  10         2,8 - 2,15
  11         3,8 - 3,15
   .           .
   .           .
   .           .
  15         7,8 - 7,15
```

and so on until character 39 on line 0

```
          Character 39 Line 0
Byte Number     X,Y coordinates
     312        0,312 - 0,319
     313        1,312 - 1,319
     314        2,312 - 2,319
     315        3,312 - 3,319
       .            .
       .            .
       .            .
     319        7,312 - 7,319
```

This process continues for the next 24 lines until we have mapped all the 1000 characters and 8192 bytes. To calculate the location of any bit from the X and Y coordinates use the following formulae :

```
Let the start of the bit-map = BASE (say 8192) then
ROW = INT(Y/8)
LINE = Y AND 7 (equivalent to Y - INT(Y/8)*8)
\v\CHARACTER = INT(X/8)

Because bits are numbered as 76543210, the actual bit we are defining
with the X and Y coordinates is found by
BIT  = 7-(X AND 7)
The byte location is then
BYTE  = BASE + ROW*320 + LINE + CHARACTER*8

Once the byte is found the desired bit is turned ON, set to 1, by
POKE BYTE , PEEK(BYTE) OR 2^BIT
or turned OFF, set to a 0, by
POKE BYTE , PEEK(BYTE) AND (255-2^BIT)
```

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Products

Phil Campbell's Entertainment

All the latest news and views from the world of entertainment.

Commodore Baby expected soon

Rumours are flying thick and fast about the new Commodore "Baby", an integrated Amiga 500 and CD player. When it arrives, the Baby will be the ultimate multi-media machine - fantastic games and Educational programs with live-action video backdrops and CD quality sound, reference works with colour illustrations and sound samples - the possibilities are endless. The baby will be styled like a standard "home stereo" component, and is designed to simply slot in to your existing home entertainment system. There's a remote controller that will let you access all functions - no more mouse and keyboard, though these will be available as options. By the way - it will even play your collection of existing Audio CDs.

Machines will be released to developers in the UK next month, and Commodore Australia are planning to release the machine here in the first half of 1991. We'll keep you posted.

Street Rod from ECP

Wanna drag? Now's your chance, with *Street Rod*. There are 25 Hot Rods to choose from and you can customise your car with a full blown construction kit before you hit the drag strip. Distributed by ECP, *Street Rod* retails for $49.95.

Disney release quality software range

Questor have announced the release of twelve new titles from Walt Disney Software - Dick Tracy will be one of the first. But it's the Disney Educational range that's really raising some eyebrows. "The Mickey Mouse educational series is streets ahead of anything I've ever seen," says Questor's Tim Allison. Here's an example. Mickey lies snoring in bed - press "S" - Mickey wakes up, yawns, walks to the bathroom and picks up some soap. A genuine Mickey Mouse voice says soap. There's a similar sequence for every letter of the alphabet, as well as a whole Disney-style world to explore - characters speak to each other, and even tell jokes. First releases are in IBM format, and come with a special SOUND SOURCE card allowing full digitised sound through the printer port. Amiga animation packages and other neat stuff are on the way too.

Web of Terror from Pactronics

They're waiting in the deepest reaches of space - huge space spiders. You are Rock Bimhead, and your ship is called to rescue a space cruiser trapped in a huge space spider web. There's only one problem. You're terrified of spiders! The aim of the game is simple - collect stranded survivors in your ship, then drop them off in safety - just like a space age version of *Choplifter*. Amiga only, out now.

Operation Stealth from Ozisoft

Set in the world of international espionage, *Operation Stealth* plunges you head-first into a James Bond style interactive adventure. You are John Glames, CIA undercover agent, survival expert, trained in the latest combat techniques. Your task is to track down a missing Stealth Fighter, that has somehow been stolen by international terrorists. To help you in your task you've got all the standard secret agent goodies - an acid squirting pen, safe decoder, a tape recorder built into your Ronson electric shaver. Sounds like good stuff, and it uses the Cinematique operating system first shown in *Future Wars*. Watch out for a full review soon.

Design your own missions in "Breach-2" RPG

Amiga fans will need 1 Meg of memory to play *BREACH-2*, an advanced Role Playing Combat game with 3-D maps and views, animated combat, multi level terrain and 10 opponents - you can even create your own characters, and design your own missions. This is a very deep game, with strategy and shoot-em-up elements as well. Watch out for a full review soon.

RORKE'S DRIFT

Join the fight against the Zulu armies in this fully animated war game - there are full 3-D maps and animated combat sequences as well as plenty of excitement in this historically accurate wargame from Pactronics. It's out now, and definitely worth a look if you're keen to try something a little different.

Wings arrives

The 1 Meg version of *Wings* has arrived - it should be in the shops by the time you read this. Don't miss it - it's the best game I've seen for a long time, with high speed vector graphics mixed with detailed bit-maps. Watch out for a full review next issue.

Atomix from Pactronics

Play your way through 30 levels of atomic excitement with this new "*E-motion* style" release from Pactronics. In the first level, for example, you have to push atoms around the screen to build up a water molecule. Study for your chemistry exams while you play! It should be in the shops by the time you read this, and I can assure you that it's dangerously addictive!

New releases from Ozisoft

Flight of the Intruder, a hot new Flight-Sim from Spectrum Holobyte, has just been released for the Amiga at $69.95.

The Leisure Suit Larry Triple Pack priced at $99.95 sounds expensive - but it features all three of the top selling Leisure Suit Larry games in one pack.

Hints & Tips

Send your hints to Phil Campbell, PO Box 23 Maclean NSW 2463. You can also fax your good advice on (066) 452 060.

AMIGA

Silkworm

Shalom Baker, of Selby, Vic, points out that when playing SILKWORM in cheat mode (see July issue), by pressing the "F" keys you can change the speed of play, and by pressing the number keys you can change to different levels - ie key 7 takes you to level 7.

Pro Tennis Tour

Pat Cash please note! Climbing the world tennis rankings is easier than you think. Juris Graney says all you have to do is play the first set; when the score screen appears, press the fire button, then ESC. The screen will then declare "Game, Set and Match" to your opponent. Even so, you'll find your ranking has just dropped from 64 to around 54. Repeat the process until you find an opponent you can beat!

COMMODORE 64

Michael Fox of Airds NSW sent a stack of Pokes, as did somebody else whose name I've misplaced! Sorry about that. Here's a combination of some of the best - simply reset your computer with a reset button or cartridge, then type the POKE and SYS commands as shown below. Press return, and you should find you've got unlimited lives.

Action Biker POKE 2398,173: SYS 2128
Blasteroids POKE 1151,173: SYS 25856
Bombjack POKE 5112,0: SYS 3101RICK
Dangerous POKE 27931,173:SYS 2057
Space Harrier POKE 6010,173: SYS 2128
Operation Wolf POKE 33351,165:SYS 16963
Robocop POKE 44416,0: SYS 32768
China Miner POKE 32776,0: SYS 33127

THE SENTINEL

This must be everybody's favourite game! Stuart Elflett sent the following:
Level 0010 - Code 67510065
Level 0043 - Code 46358774
Level 0085 - Code 74477986
There are more, but typing all those numbers makes me go funny in the head! Stuart also sent these Pokes, which he says should be entered on separate lines:
POKE 6679, 173 <RETURN>
POKE 8512, 10 <RETURN>
SYS 16128 <RETURN>

DRAGONS LAIR II - Part 2

Juris Graney is still escaping from *Singe's Castle*. Here's the second episode in his adventures.

The Lizard King.

If you are standing on the left side of the screen go right twice, if you are standing on the right side, go left twice. Then you will be running up a passage way. If the passage is tilted to the left go forward, and when the magnet carrying your sword goes left, you go left, if the room is tilted right go forward and when the magnet carrying the sword goes right you go right. The screen will change again.

Now this is the hard part. Push the fire button twice so you can get your sword. The screen will stop if you are standing on the left side go left, right, down and press the fire button. Dirk will kill the lizard and walk off.

The WalkWay.

When you are on the walkway the floor will start to crumble away. When this reaches your feet go forward and when you land go forward again. You will do this about three more times.

The Mudmen.

Dirk will start to walk towards some mudpits. When the first squirt of the mud goes up go back. The screen will change and four mudmen will be after you. There will ge a wall of flames on your right or left of the screen. Go forward and than as soon as the flames stop go left or right depending on where the flames were. The screen will change again and all you need to do is go forward, than go left or right depending which way the bridge is facing, than pull down and as soon as the screen changes go left or right depending on where the door is.

The Skeleton.

If the skelton's hand comes up from the right go left, up, right, left. Do the opposite to this if the hand comes up on the left.

The Crypt.

When confronted by the Evil Shapeshifter go left if the sickle blade is on your right. Then go right in the same frame. Next frame go right and up in quick secession. Then go left and up. Then go back, forward and then go .... aaaugh.

Sorry folks, that's as far as we can take you. If you can get any further, let us know!

MINDSCAPE "DAYS OF THUNDER" COMPETITION

Mindscape have three copies of this new movie adaptation to give away, and as everyone seems so keen on word puzzles, try this. Write down all the words of four letters or more you can make from the letters in the title *Days of Thunder* - each letter can be used only once (except for D, which occurs twice!) Naturally, the original words don't count. One prize will go to the entry with the biggest single word, two other prizes to the entries with the most words. Please count your words and note the number clearly at the bottom of the page. Send them to Phil Campbell, PO BOX 23 Maclean NSW 2463, or fax them on (066) 452 060 - "competition".

MINDSCAPE GREMLIN COMPETITION WINNERS

The Mindscape "Draw a Gremlin" competition was obviously much too hard for most readers! After a phenomenal response to the *3-D Tennis* competition, we were surprised to see that this one got you well and truly stumped! The winning entries, however, were of a very high standard.

Congratulations to first prize winner Mandy Bailey of Mandurah WA for her excellent pencil sketch of three cuddly gremlins. Second prize goes to David Thompson of Merewether NSW, and third prize to 12 year old Garreth Ludke of North Rockhampton. Prize winners will all receive a Gremlin Pack containing *Super Cars, Greg Norman Golf* and *Skidz!*

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Hall OF FAME

AMIGA

AMIGA ARKANOID - 976,548 Kamikaze Andy
BATTLE SQUADRON -99,999,999 A. Burbidge
BLOCKOUT - 36,455 David Marsh
BOMBJACK - 200,680 David Thompson
BUBBLE BOBBLE - 1,200,460 V. van der Heyden
BUGGY BOY - 103,350 David Thompson
CHASE HQ - 4,285,000 Matthew Mantle
CONTINENTAL CIRCUS- 4,529,690 A. Burbidge
CRAZY CARS - 84,006,720 Bill Horsley
CRYSTAL HAMMER - 43,847 David Thompson
DENARIS - 53,900 Peter Evans
DRAGON NINJA - 204,880 Matthew Mantle
DOUBLE DRAGON - 124,630 James Knight
ELIMINATOR - 48,665 Greg Munro
GEE BEE AIR RALLY - 307,466 Kamikaze Andy
HYBRIS - 1,618,452 Matthew Mantle
IMPOSSIBLE MISSION - 66,380 Diane Unwin
INDIANA JONES L.C.- completed Phillip Nicoll
SS - 1,420,450 Å G Smyth
KARATE KID II - 52,000 Robert Dunn
LEATHERNECK - 83,300 Owen Webster
MAJOR MOTION - 50,658 Owen Webster
MENACE - 996,481 Kamikaze Andy
MINDWALKER - 306,214 P Schumacher
MOUSETRAP - 64,817 Matthew Mantle
OPERATION WOLF - 344,800 John Boyle
OUTRUN - 11,102,200 Brad Stewart
OFFSHORE WARRIOR - 626,345 Jacob Booth
PACMANIA - 3,250,140(c)Amos Burbidge
PINBALL MAGIC - 332,390 Tracey Chilcott
PIONEER PLAGUE - 35,412 Keir Sooby
POPULOUS - 201,600 Nathan Allen
POW - 612,865 David Thompson
RAMPAGE - 111,600 Kamikaze Andy
SIDEWINDER - 811,250(c)Amos Burbidge
SILKWORM (Heli) - 913,700 A J Dunstall
SILKWORM (Jeep) - 515,100 Andrew Barker
SKWEEK - 715,940 Stephen Lander Level 55
SPEEDBALL - 17,650 Amos Burbidge
STARWARS - 5,722,822 C. Mingos wave 33
STRIDER - 113,950 Kamikaze Andy
SUPER HANG-ON - 13,857,903 Brad Stewart
SWORD OF SODAN - 364,750 Kamikaze Andy
TEEN.MT.NIN.TURTLES - 140,900 David McLeish
TEST DRIVE - 112,915 Wayne Haesler (sorry!)
TEST DRIVE 2 - 307,910 Amos Burbidge
TETRIX - Level 103 Sally Pollock
TURBO OUTRUN - 100,260,819 Matthew Mantle
TV-SPORTS FOOTBALL - 189-0 David McKinney
TYPHOON - 54,255 Owen Webster
VIRUS - 7,131 Amos Burbidge
WHIRLIGIG - 28,210 Nathan Allen
XENON II - 1,007,830 Kamikaze Andy
ZOOM - 58,903 Sally Pollock

COMMODORE 64

BATMAN THE MOVIE - 330,920 Simon Watford
BANGKOK KNIGHTS - 36,800 N. Van Heeswyk
BOMB JACK - 344,560 J Jacobs
BUBBLE BOBBLE -1,009,857 Kishore Ludbey
BUGGY BOY - 118,750 Paul Millward
CHASE HQ - 9,220,121(c)ICEMAN
DOUBLE DRAGON - 17,340 Paul Millward
DOUBLE DRAGON II - 255,190 N. van Heeswyk
FAST BREAK - 136 to 9 Chris Byrne
GIANA SISTERS - 81,981 Russell O'Neill
GRYZOR - 203,900 Paul Millward
HANDBALL MARADONA - N Van Heeswyk
HAWKEYE - 59,000 Nick van Heeswyk
IKARI WARRIORS 267,800(c) Iceman
INT. KARATE - 139,300 Paul Millward
LAST NINJA II - c34.2 sec N Van Heeswyk
OPERATION WOLF 168,789 Kishore Ludbey
OUTRUN -6,438,787 Kishore Ludbey
PAPERBOY - 19,750 Royston Diaz
QUE-DEX - 639 Chris Byrne
R-TYPE - 684,200 Nick van Heeswyk
ROBOCOP - 82,250 Tim Lockwood
ROLLING THUNDER - 222,740 Iceman
SALAMANDER - 235,300 Paul Millward
STREET FIGHTER - 127,050 Chris Byrne (clocked)
SUPER CYCLE - 212,210 Iceman
TEST DRIVE - 24,790 Jason Denham
THUNDERBLADE -1,734,040 Troy Morrison
THUNDERCATS - 57,500 Chris Byrne
TARGET RENEGADE - 330,450 Chris Byrne
THE UNTOUCHABLES - 70,230 Simon Watford
WONDER BOY - 237,650 Kishore Ludbey

Scores followed by (c) indicate that the game has been completed.

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Read on, as ANDREW PHANG takes you on a guided tour of ....

IMPERIUM

In this new release from Electronic Arts you become the Emperor of the Solar System. You wield total control over every aspect of society, from military forces to the galactic economy. Evaluate your strategy in dealing with the other empires that make up the universe. The fate of your people, indeed the fate of the entire Solar System rests in your hands. Ah, the power of being Emperor!

Imperium is a mixture of strategy and simulation. Every move you make will have consequences elsewhere. If you decide to build up your starfleet of battleships, other empires (and there are quite a few) might view this as a threat to their existence. However, if you decide to solely concentrate on developing your economic wealth, your Empire will be defenceless against attacks by marauding invaders. The wise Emperor must balance military strength with economic growth, and this is no easy task (ask Hawkie!).

Your ultimate goal is to expand your Empire to the furthest reaches of outer space, and there are two clear ways of doing this. The first (and easiest) is to simply conquer the other existing empires. Maintain a steady economy, and your wealth will allow the Empire to increase its armed forces. Starfleets of Battle Cruisers, Destroyers, Frigates, and Dreadnoughts must be built, which costs time and money. Then you'll need money to recruit and train different levels of troops. Furthermore, you need money to build Ark Ships and fill them with colonists, to populate your conquered worlds. Finally, you may need to make alliances with other empires (before invading them), and alliance treaties often mean economic treaties. Hence the need for a successful strategy in controlling the trade and economy of your Empire.

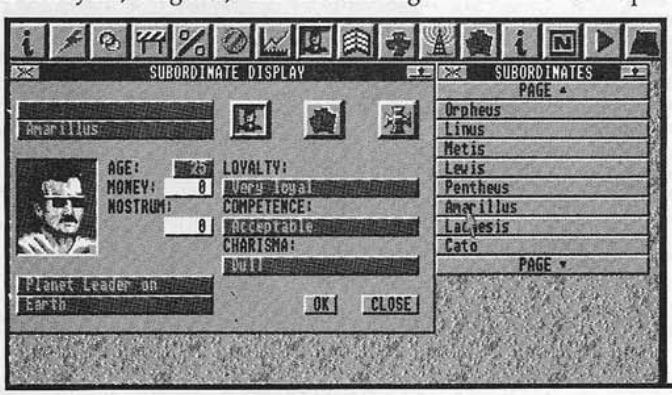
The second way to win is to live for a thousand years. Yes, a THOUSAND years! Imagine what your breath will be like! How can any mere mortal, though Emperor he may be, survive for such a long time? Simple. Steroids. Really! In this case, Nostrum, a life preserving drug that can halt the aging process. As you can imagine, Nostrum is a much sought after substance. Empires will go to war over it, and so will you. It's vital to find adequate amounts of Nostrum, because without it you won't live long enough to win.

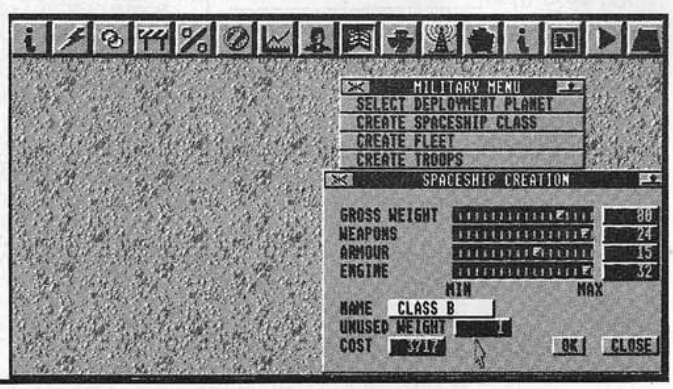
Graphics are nothing to shout about, though they are crisply presented in black and white - but why didn't they use more colour? The game screen consists mainly of a series of icons, representing your options (build spaceships, build spy antennas, obtain the latest news reports, and so on). There's a map icon which switches the game into a "revolving map" mode. Here you are able to collate all the information you have on various empires and planets, as well as viewing a graphical representation of the galaxy (click another icon to "revolve" the map). The emphasis in *Imperium* is not on flashy graphics, but strategy and gameplay, of which there are heaps. Fair enough.

Imperium is another solid strategy game from Electronic Arts. The number of options available are too numerous to count, and the nature of the game will ensure many, many hours of gameplay. Thank goodness for the Save game option! Included with the game package is a very detailed manual, and an Amiga reference card. Strategy buffs, make a beeline for this one!

Distributed by:
ECP (075) 963 488
RRP: Amiga $49.95

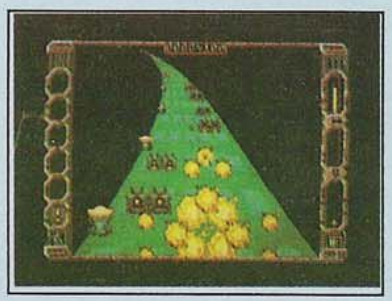
Ratings:
Graphics: 75%
Sound/Music: 88%
Gameplay: 89%
Value: 85%
Overall: 87%





GREG MUNRO *likes a game he can get his teeth into. And here's one that's right up his alley. Fast, furious action all the way with*

ELIMINATOR



Yes, it's yet another shoot'em-up from Hewson, and it's predictably fast, difficult, addictive and non-cerebral. Just the thing for getting your mind out of thinking mode after a hard day at the office (or school). It's simple, straightforward, fast and furious arcade action you can just load and play. And it's a great game!

You can read and comprehend the instructions in less than sixty seconds - which is longer than my first game lasted! Under "Scenario" comes the usual garbage: "From underground there came a machine encircled by death, that kills but cannot be killed...The Eliminator. A war machine whose solitary quest is to eradicate all forms of life - travelling from planet to planet obliterating all in its path." (Not very enviromentally friendly, is it?!) Did you pick the blatant lie? Yep, it's definitely not true that your "machine encircled by death" can't be killed! On the contrary, there are lots of real easy ways to destroy your Eliminator vehicle!

Eliminator is set on a long winding track. The objective is to pilot your vehicle through each stage, shooting everything in sight and avoiding or destroying obstacles. Three powerful jets propel Eliminator along just above the surface at breakneck speed. You need lightning reflexes - there are no brakes! However, if your shattered nerves need to recover, there is a pause function. The track has a chequered pattern to provide perspective. It winds from side to side as well as up and down hills and through tunnels. Assorted aliens attack in waves. Some are just spherical green things, others look like 3D Space Invaders. Some are big bloodshot eyeballs.

As well as aliens you'll encounter walls, targets, ramps, and bonus icons. Walls are indestructible stationary objects. Some look like bits from the movie "Alien", some are electrical discharges between two poles, others look like a wall of fire, and some are evil looking black things with flashing lights. They all have the same result - instant destruction! Some sections require very precise zigging and zagging to avoid these annoying objects, especially when walls are combined with targets.

Targets are flashing objects which cover an Eliminator sized gap. To proceed through without becoming a fireball, the target must first be destroyed.

Ramps are harmless ... sometimes. They flip you into the air so you can jump walls which cover the whole track. In stages 2, 4 and 6 there are also ramps which flip you upside down onto the ceiling. Hint: avoid the first ramp in level 4 - it leads straight into a wall of fire on the roof! In Stage 5 the whole central strip is a quagmire of blue liquid which can only be crossed via ramps. If you touch it, you sink bubblingly into oblivion.

Bonus icons are spinning pyramids and cubes. Pyramids for extra weapons, and cubes for ammunition. There are five weapon types on top of the single-fire cannon you start with. These are shown to the left of the screen and may be toggled through by moving the joystick up and down. On the right of the screen is ammo, shields and lives. Extra lives are awarded every 10,000 points.

Control is entirely by joystick, except for key commands to pause; abort; and toggle Music and SFX on and off. High scores are written to disk, which is nice - there's nothing more useless than high score tables that don't store your victories for posterity! My high score is 48,665. So far I've reached Stage 7, which is easier than the near impossible Stage 6, and the incredibly difficult Stage 5, but by that time I only had one Eliminator left.

Every few levels you obtain a password enabling you to skip earlier stages, which makes it easier to get further, but harder to get a high score. But don't blink or you'll miss it, because like everything else in *Eliminator*, it doesn't hang round long!

Graphics, SFX, and music are good. Not brilliant, but what can you expect from an Atari ST conversion? The game itself though is dynamite! I recommend it almost without reservation. Shoot'em-ups are not my favourite type of game, so they've gotta be good to impress me, and this is a very good game. *Eliminator* is instantly addictive, challenging, good value entertainment. Unlike many games I review, I'll probably still be loading it six months from now. ❑

Distributed by:
Pactronics (02) 748 4700
RRP: C64 disk: $39.95

Ratings:

Graphics:	69
SFX, Music:	70
Playability:	97
Addictiveness:	97
Overall:	89

QUICKSHOTS

A quick look at what's new in the world of Games

International 3-D Tennis

International 3-D Tennis offers a fresh new perspective on sporting simulations. *C&VG* magazine rated the game at 94%, and absolutely raved about it ... "This is fab - a breakthrough. No one could fail to be impressed." After reviews like that, what can I say? It's certainly an interesting game. Programmers Sensible Software have taken the radical step of applying vector style graphics to a sport sim. And to my mind at least, the results are mixed.

Vector graphics will be familiar to anyone who's played a fast paced flight simulator - the world is re-created in geometrically faceted blocks, full of straight edges and angles that can be recalculated and redrawn quickly by the computer. It's a 3-D world, alright, but at the expense of realism. And the same trade-off has been made in *3-D Tennis*.

In a word, the graphics are u-g-l-y. Your players look more like stick insects than tennis stars as they scuttle round the court. Everything is triangular. Your head is a triangle, your torso is a triangle - even your racquet is a triangle. And ironically, in this 3-D world, the players are very, very two dimensional. But - and it's a big but - there are benefits as well. These two dimensional stick insects move with scientific precision, and you've got much more control than in most other tennis games. In fact, these guys play better tennis than almost any stick insect I've ever seen.

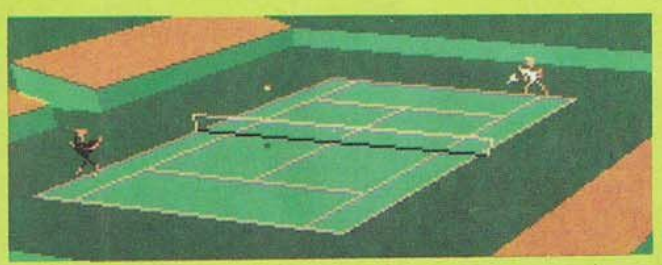
Sound effects are great too. Close your eyes for a moment and you'll find yourself on centre court at Wimbledon. On the Amiga version, the crowd murmurs and roars, the ball bounces on the court and thwacks on the racquet convincingly, and there's even a plum-voiced umpire who announces the score clearly after each point.

There's a two player mode that lets you battle it out with a friend, and you can play in any of 72 true to life tournaments or even a full season. There's prize money to be won as well as the world ranking chart to climb - so *International 3-D Tennis* will offer a good long term challenge.

This is a hard game to rate. While the graphics are ugly, they also do the job very well. Gameplay and sound effects are great, so all in all it's a nice game.

Distributed by:
Mindscape
(02) 899 2277
RRP: Amiga $59.95
C64 disk $39.95

Ratings:
graphics: 75%
sound : 95%
gameplay: 84%
overall : 85%



OMEGA

If it's tanks you're after, look no further. *Omega* lets you join the elite cybertank engineers at the Organisation of Strategic Intelligence, the world's leading developer of military cybernetics. It's your job to design and program killer tanks - define the chassis specifications, install weapon systems, devise their AI logic systems and send them out to do battle.

Omega is definitely a "brain game" - a game of logic and strategy. You'll need to put a lot of time and effort into designing the perfect tank, but it's all rewarded in the end - especially if you win.

The game is certainly complex - the manual is nearly two centimetres thick. But don't panic! It's not as tough as it sounds. Construction is modular, even down to the pre-defined Artificial Intelligence modules that make up your tank's brain. The programming language that controls your tank consists of simple English-like commands like "Turn Tank to face enemy tank," which even I can understand.

The game fills two double sided disks, and you also need your own data disk. Impressive, but you'll find yourself doing a heck of a lot of disk swapping. Most of the action takes place in front of a simulated OSI computer terminal, so the graphics are not all that flash. The simulated battle sequences are not much better - a half screen display shows your tank trundling around a battlefield following your pre-defined instructions. The tank is small, with little detail, and the battlefield lacks colour.

Sound effects are minimal too. But in the end it doesn't much matter. You won't be buying *Omega* for the graphics and sound - you'll be buying it for the strategic challenge. It's full of atmosphere, and there's a heap of depth. Budding cyber-scientists will love it.

Distributed by:
Dataflow (02) 331 6153
RRP: Amiga $69.95
C64 disk

Ratings:
Graphics: 53%
Sound : 52%
Depth : 90%
Gameplay: 76%
Overall:74%

Red Storm Rising

Some time ago Tom Clancy's book *Red Storm Rising* was released as a C64 game. Now the Amiga version is available.

Nuclear power and improved sonar technology changed things for the better. A nuclear submarine can now outrun most surface ships and it's torpedoes are now robotic kamikazes, programmed to search for their targets with active and passive sonars, then close on and destroy it with a half-ton warhead.

The main capability of the submarine is stealth. Submarine warfare is ambush, followed by evasion; a game of life and death played in three dimensions of cold, wet and unforgiving darkness.To play *Red Storm Rising* you'll need to study the instructions. It's a complex game! The instruction book is 100 pages long and full of information about tactics, controls, maps and the ships that you will fight against and sail in. If you're looking for a brainless shoot 'em up, this game is not for you. But if you're something of a strategist, you'll love it.

Most of the game is played out on a radar screen, which means the graphics are not very fancy. Torpedo launch sequences are better, with a nice graphical sequence showing the results of your shot. The sound effects are not very fancy either - but then again, life on a submarine is pretty dull. All you hear are authentic sonar "pings" and a range of electronic beeps and buzzes.

Even so, *Red Storm Rising* is a classy game. I liked it a lot.

Juris Graney

Amiga version reviewed. C-64 already available.

Distributed by:
Questor
(02) 662 7944
RRP: Amiga $69.95

Ratings:
Graphics: 72%
Sound : 65%
Strategy: 85%
Overall : 77%

Venus - The Flytrap

When over intensive farming and the excessive use of pesticides destroyed all the world's real insects, scientists stepped in to restore the ecological balance. They created a race of genetically engineered cybernetic insects. But a flaw in the genetic makeup of these Cyberbugs has made them run rampant. The world will end - unless your robotic "Venus", the ultimate killer insectoid, can save the day.

In Venus, there are fifty levels spread across ten different worlds. With a bonus level at the end of each level.

The graphics are very lush, full of strange green plants and vines, arranged in a horizontally scrolling platform style landscape. As you destroy each enemy cyberbug, you can collect a bonus pod - extra speed, weapons and time are yours for the taking. Animation is slick, sound is nice.

All in all this is a pretty nice game.

Distributed by:
Mindscape
(02) 899 2277

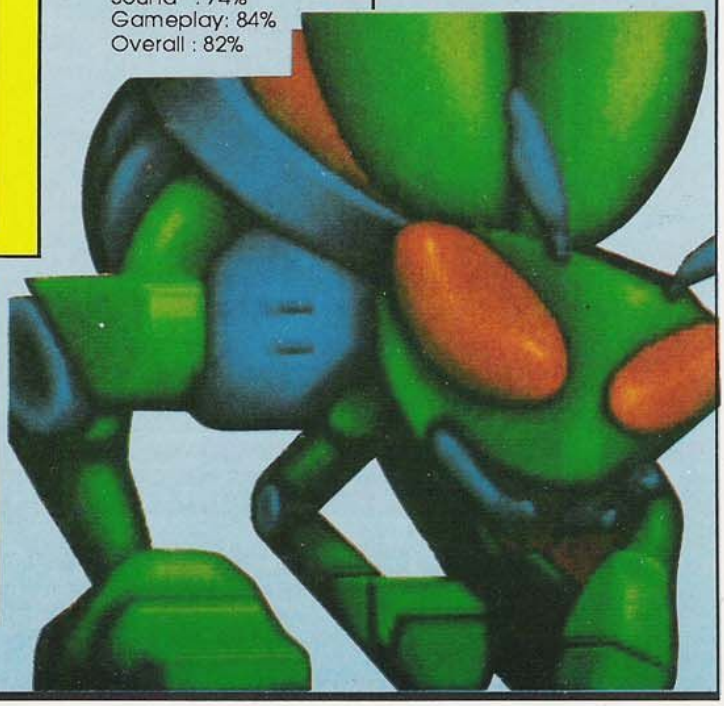
RRP: Amiga $59.95
Ratings:
Graphics: 83%
Sound : 74%
Gameplay: 84%
Overall : 82%

The Plague

The Plague is a nasty piece of business - grim but highly detailed graphics, sombre music, and hordes of evil beings to destroy. You'll probably love it. The action takes place on a horizontally scrolling landscape - you control a huge and muscular sprite whose task it is to rid the planet of the results of an unfortunate genetic experiment. Hey, sounds familiar. Isn't this the same scenario as *Venus*? This time, though, the mutants are huge and extremely mean. Scrolling is fast and smooth, and the special display mode uses 42 colours to create a nice feeling of depth. Gameplay varies from the too easy to the seemingly impossible, so I guess you'd have to say there's something for everyone. I'm still stuck on level 1. In summary, *The Plague* is one of the best "nasty-blasters" I've seen for a while - a very well polished game.

Distributed by:
Mindscape
(02) 899 2277
RRP: Amiga $69.95

RATINGS:
Graphics: 88%
Sound : 84%
Gameplay: 76%
Overall: 81%



(PLAGUE)

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FLOOD

If you hate having fun, then don't read this! As ANDREW BAARTZ discovered, the creators of Populous might have another hit on their hands ...

➡As I unwrapped it, my immediate impression of *Flood* was that it was probably just an innocuous little kids game. (My wife reckons that all computer games are for little kids). And as it booted up, and as the music played, and as the screen came alive - I still thought it was for toddlers! Even the poster that came with it looked as though it belonged in my son's room - he's seven months old. I didn't expect the game to hold my attention for more than fifteen minutes.

But look at me now! A *Flood* addict - unable to concentrate in conversations, distracted at work, prevented from leading a normal life as my mind yearns to discover how "Quiffy" (the *Flood* hero) can be saved from the rising flood.

You see, Quiffy's subterranean home is filling with water and he must escape to the surface, because he can't breathe underwater! After all, he's only a slightly overweight wee green Blobbie. In fact, he's the last member of his race (very sad), alone and needing help. In the background there's a gurgling sound as water starts to fill each of the forty-two levels. And Quiffy makes interesting - sometimes puzzling - sounds as he encounters various other inhabitants of the caverns, like the 'Bulbous Headed Vongs', the 'Vacuous Combos' and the 'Psycho Teddies'.

It was these sounds that made my wife a little curious, and led her to venture to the Amiga and see what was happening. Then she saw the graphics and she was captivated. They really are great! Even Samuel, from the safety of his high-chair, was gripped by the colours and cartoon characters on the screen. This was quickly becoming the tragic story of a family addiction. Then ... my technophobiac wife even asked for a turn !?! Reluctantly I gave up the joystick. Being unfamiliar with computer games in general, let alone a cartoon-style fantasy adventure, I gave her a little advice to get her going. (Rachel doesn't like reading instructions, even though they managed to fit everything you need to know on the back of the poster)

The poster is actually a form of copy-protection. Questions are asked about it to gain access, and you even get to choose the language in which it asks. Various levels have hidden passwords, so at the start you can bypass sections of the game that you have mastered, and get into the latest action quickly. And Quiffy is an active little critter. He runs (actually he's a bit plump and it's more of a waddle), he jumps, he climbs walls and ceilings, he goes ballooning and parachuting, he dives and he swims. He's a little trash collecting, all-terrain creature. But he can't stay under water for too long before it does him harm. Despite that cute, fun loving, unassuming exterior, Quiffy has a strong sense of survival.

Scattered throughout the cavern is a variety of life threatening hardware: Grenades, Flame-throwers and delayed action Dynamite, to name a few. These have been left behind after a genocidal war against Quiffy's race. The perpetrators of that vicious war still haunt the caverns and Quiffy is always on guard. Indeed, the caverns are full of all manner of bizarre creatures and intruiging devices. To get from one level to the next, Quiffy must collect all the pieces of trash, to enable the teleporter. And it's a race against the clock, since the *Flood* waters are rising all the time behind him. Not only do Quiffy's enemies slow him down, but the 'Sparling Fungi', the 'Beady Balls' and the missile traps all thwart his pilgrimage.

Unlike many adventure games, *Flood* is not slow or frustrating. There is a lot to learn, but the rate of discovery is pretty quick. Skills are developed rapidly, and good timing becomes much more critical than fast reflexes. (That was another thing that Rachel liked about *Flood*).

It's an intense race for survival, but heaps of fun. Let's face it. It's addictive! It took all my self-control to just stay away long enough to finish this review. Don't buy it, if you've got better things to do than be entertained for hours and hours and hours. ❑

Distributed by:
ECP (075) 963 488
RRP: Amiga $49.95

Ratings:
Graphics : 81%
Sound : 75%
Playability: 88%
Overall : 83%

TONY SMITH *dusts off his brain and finds himself fascinated as he gets into some serious role playing with ...*

CENTAURI ALLIANCE

➡Role playing games, or RPG's as they are known have never been my favourite computer pastime, although I have dabbled in the *Ultima* series and enjoyed games like *Heart of Africa* and *Seven Cities of Gold*. As I opened *Centauri Alliance* I gazed in amazement at the three disk set with its accompanying booklets, reference card and fold out map. This was more like it, an RPG set in the future as a space trading type of game with an *Ultima* style of interface.

I read through the manuals and booted up the first disk. Five hours later I was still at it. This game has certainly got that "play some more" feeling.

You play the part of an alliance Soldier. Together with your team, you are sent to a distant planet to receive your orders. This seemingly complex task results in you and your team gaining valuable experience points and artifacts. Later you venture into the unknown in search of the 'Daynab' Confederation and the pieces of an ancient weapon, the 'Fractyr Fist'. On the way you encounter people from six different races from humanoid to insectoids, birds, reptiles and even the amazing 'Practor,' 1 metre tall and living for 120 years, they can metamorph at will into a variety of shapes but in their relaxed form they have three legs and three arms with one cyclopian eye in the middle of their head.

Two main books are included in the package, a reference manual and a field guide, being 53 and 24 pages respectively. The books are highly necessary. Pirate copies of this game, if it is possible to 'crack' it, will be useless. Even the map of Lunabase in the field guide is invaluable.

The Psionic ability chart contains the 90 keywords for the various powers available. Five categories of psionic power can be used on each level with up to four powers in each category. Mind power ranges from "invisibility" on level one to "berserker rage" and "aura block" on levels seven and ten. Body power ranges from "insta-heal" and "meta-fist" to "astral sight" and "fastclone". Matter powers range from "earthquake" to "chaos", energy powers from "force field" to "photon fury" and last of all, "Metamorph", which lets you change your shape.

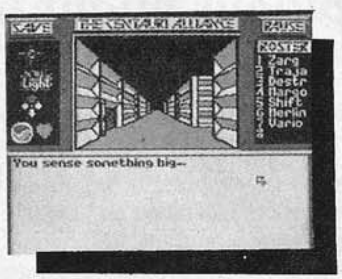
There are eleven separate worlds to be visited, each with its own special benefits and dangers. Weapons and protective clothing are found in the shops scattered around the spaceports and range from broadswords to beretta's, shotguns and even a photon blaster. Environment suits and combat armour are also available - at a price of course.

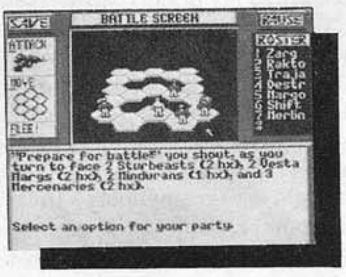
You may have guessed by now... this game is HUGE! With four sides of scenario disks and the ability to use more than one disk drive (thank you, programmers) there is an incredibly wide range of situations and variables. Characters can be created, modified, chosen and even imported from such games as *Bards Tale 1,2* or *3*, *Wizardry 1-3*, *Ultima* or *Might and Magic*. If you had a favourite Orc called Boris in *Ultima*, he could become a technician in the dawn of the 23rd century.

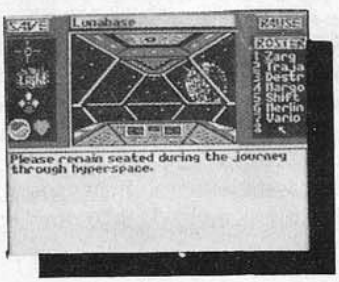
Exploring the 'world' takes you through a smooth, fast maze. There are doors to enter and passages to follow. Map making is a must, but the game includes a (V)iew mode to map the current level - make sure you copy it down onto graph paper before leaving the area.

I am now converted to RPG's and will be reviving my interest in some of the more dated games when I can get off this one. Who said the Commodore 64 was dead? It lives on with a strength that amazes us all. RPG fans rejoice, this will keep the dedicated explorer and organiser happy for a long time to come.

Distributed by:
Dataflow (02) 331 6153
RRP: C64 disk $69.95







Bridge Player 2000

Rusty Card Sharp* KEN SIMPSON *checks out this new card game, and decides that some people might like it quite a lot...

The enormous amount of energy and money invested in card games has always amazed me. So many games seem to be totally dependent on luck that I fail to see how anyone could hope to come out on top in a gambling contest without cheating. Having been raised in a family that was "holiday addicted" to Five Hundred, though, I can see the measure of skill required in choosing cards and bidding appropriately.

Therefore it seemed somewhat strange to receive *Bridge Player* to review. Someone that knows less about bridge than me would be difficult to find. To my relief though I saw that the package comes with a tutor. Well, I'll give it a go. Wonder of wonders, it worked on my accelerator and I am sure it would have run from my hard drive.

The initial start screen is quite pedestrian. A page full of coloured text is not the most inspiring of entries to a game. To begin you are presented with the choice of playing a game or using the tutor with any of 20 preset hands. Then, woe of woes, you are given a screen that has four areas with symbols and characters to represent your hands. You play south and start the bidding.

It took me a while to realise that the preset hand meant that you couldn't deviate from it. Any option other than the option the computer was expecting is outright rejected and you have to try again. After a while I twigged that if I typed "Z" the preferred hand (and bid) would be made for me and for my partner - whom you also play. Confused? So was I.

Eventually I went on to win the hand, and a half screen of commentary text is displayed to help you understand what the game is doing. Unfortunately for me, I knew so little about bridge that most of the commentary meant nothing to me and so didn't help. It was time to call for help. A card playing friend dropped by and decoded all the jargon - suddenly, the commentary was quite helpful. As I tried more and more of the preset hands I became more and more au-fait with the actual game play, which in many ways is like Five Hundred, and so more and more of my guesses at which card to play were approved. Still, some of the logic escapes me. And I had progressed nowhere in my understanding of the bidding.

Even so, I decided I was ready for the big-time. A real hand against a 'real' opponent. The menu choices were confusing, as I had no idea what a weak or a strong position would be, or what a contract and a declarer are (and I still haven't quite worked it out). So I opted for the one where I was strong and played on. (A neat trick is to play all four hands yourself but to ask the computer to play your opponents.) That way you can see all the hands, but play yours.

Anyway, I rapidly realised that it wasn't quite as easy as I thought. I kept making silly mistakes and being whomped by the computer, always winning enough of the tricks to keep me interested though.

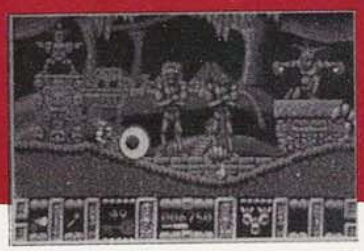
My main gripe is that the gameplay is average. All entries are from the keyboard, for example DA for ace of diamonds, or C9 for 9 of Clubs. Even quitting was accomplished by XX. There seems to have been no attempt at "Amiga-izing" what is fairly clearly an IBM port. Sometimes I wish they would just spend that little extra time making the game system sensitive. Even one pull-down menu would have made it feel better.

My impressions? Well, if you are after a *Space Ace* or *Elite* then this is definitely not a go. However it would appear to me that bridge is not really that sort of game anyway. This is definitely not the game a complete novice would use as too little is explained to really tutor you adequately. But if you have the rudiments and need practice, and the occasional tutored hand and analysis to improve your bridge, then this may be almost exactly what you need. And if you need this, who cares if it doesn't have a WIMP interface. After all, we are talking Bridge, not Go Fish! ❑

Distributed by:
Pactronics (02) 748 4700
RRP: Amiga $59.95

FIRE AND BRIMSTONE

PETER CHRISTOPHER phoned me after he'd filed this story. He wanted me to know that he's made it through level 1. He was very excited. Doesn't he know that a good reviewer should never get emotionally involved with his subject? Then again, Peter reckons this is a mighty hot game ....



I've been to hell and back. Well, the truth is I really didn't make it to hell. Mind you, I tried. So did my son. So did my daughter. So did their friends. Never in the history of mankind have so many people tried so hard for so long to enter such a forbidding place.To put it mildly, it was hell trying. *Fire and Brimstone* is one addictive, nerve-wracking and frustrating experience. It's fun, too.

If you're prone to coming home seething from work and taking it out on the resident Garfield, a dose of *Fire And Brimstone* might stop the fur flying. Then again you might end up doing more damage out of sheer frustration. That's the nature of the game.

Here's the plot: Thor, a Norse god who looks like a shortfry bodybuilder, must go to Niflheim, home of the fiendish goddess called Hel. But getting to Niflheim is no easy matter. There are many lands to travel through before you reach the evil one and Hel's influence has filtered into all of them.

Nastiness abounds as all manner of creatures try to wipe out our gutsy little hero. Not that I know too much about too many of those other worlds. Poor old Thor had a 36 handicap when he got me as his mentor. But Thor perseveres, knowing that to reach and kill Hel will give his people liberty for all time. *Fire And Brimstone*, no doubt named after a few Presbyterian sermons, is a dark, yet still richly coloured game of cunning, speed and trial and error. The graphics, set almost entirely on black backgrounds, are in deep greens, vivid reds, and blues and are well detailed. A good example are the flowing rivers, with leaping goldfish, and the forests with leaves shimmering in the trees. We enter the world of Thor with a less-than-grand entrance from his little shack. He's immediately confronted by a big, muscular, blue, armed person with murder on his mind.

Now this is the only clue I'll give you - don't upset Big Blue. He gets mighty angry and is best left alone lest you lose one of Thor's four lives. Thor is well-equipped for his arduous journey with weapons like fireballs and axes but he also has some trickery up his sleeve. He can get his hands on magic potions which build bridges over deathly caverns, others which give him Olympian high-jumping abilities and still others which render his enemies in that frame helpless.

Thor needs all the help he can get because Hel has some incredibly powerful, and numerous, villains at her disposal. One example is the flock of bat-like birds which can kill Thor on impact. They attack in squadrons from front and rear and pop up at the most unwanted moments. Thor scores points every time he kills one and massing a big tally can get you on the *Fire And Brimstone* hall of fame. But frankly, I say phooey to that. All I wanted was to continue my journey, not amass brownie points.

Although I struggled and was forced to restart the journey countless times, the game has not been frustrating enough to deter me. The secret of its success is that it teases you, cajoles you to have another go. The tantalising thought of entering another world you've never seen before will, I'm sure, keep most buyers of this game going for ages.

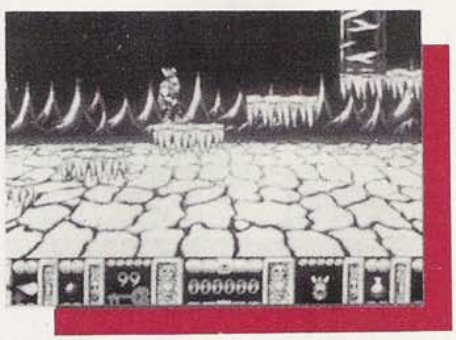
The audio on *Fire And Brimstone* is fairly basic by my reckoning - some introductory music sets the pace, but from then on there's just a whole lot of pings and pangs. Not having gone to the end however, I can't say much. There may be a full symphony orchestra awaiting a triumphant conclusion.

Thor is well controlled by the joystick. He responds admirably to anything you ask of him, like leaping over fire and firing fireballs. But just wait for the moment when one of Hel's Angels - or should that be devils - plays havoc with the joystick movements and reverses all the controls. I guarantee it will test even the most nimble of players. To move your joystick forward and have Thor go backwards and vice-versa is a memorable experience - hellish, in fact.

In summary, *Fire and Brimstone* is hot stuff. I'll be playing it for a long time yet.

Distributed by:
Questor (02) 662 7944
RRP: Amiga: $59.95

Ratings:
Graphics: 83%
Sound : 69%
Gameplay: 84%
Overall : 80%



Adventurer's Realm

by Michael Spiteri

Welcome back to the Realm, the part of the magazine that tries to restore sanity to adventurers and role-players stuck in worlds and galaxies throughout the Universe ... and beyond. As well as general hints and tips, there are a number of free hint sheets for the more popular adventure games. If you are still stuck, your last resort is to print your problem among these pages where you can be sure at least one of the thousands of readers will help you out. The address to write to for adventure game hints, problems, hint sheets and general chat is: ***Adventurers Realm P.O.Box 351 Pakenham Vic 3810***

Kamikaze Andy will try to solve any role-playing-game queries you can throw at him (no hint sheets though!). His address:

The Dungeon P.O.Box 315 Maddington W.A. 6109

We also cater for wargamers. Just mark your letter ***c/o Wargaming The Realm, P.O. Box 351, Pakenham, Vic 3810.***

Always enclose a stamped addressed envelope!!!

Help, Help and More Help (or the Smart Adventurers Dept)

Thanks to everyone who went to the trouble of responding to troubled adventurers' pleas for help.

Game: The Temple Curse
For: Ben Del Fabbro
From: Peter Nuzum
Help: To break the lock at the bottom of the steps you need the stick obtained by removing the leaves from the branch.

Game: The Temple Curse
For: Stuart George
From: Peter Nuzum
Help: To cross the pool, row west.

Game: Island of Spies
For: Stuart George
From: Peter Nuzum
Help: Give the lady the beads found in the dark corner near the fuselage. Feel in the corner and pull the string. To cross the swamp, go e.s.w.e.n.w.w.n.

Game: The Last Planet
For: Stuart George
From: Peter Nuzum
Help: You have to draw the map yourself. I don't think there is any need to destroy the shack.

Game: The Last Planet
For: Stuart George
From: Peter Nuzum
Help: There is no scrambled newspaper. In the limestone cave go n.s.e.w (anagram of news).

Free Hint Sheets

We have hint sheets coming out of our baby grues! Expect a sudden burst of new hint sheets in either the November or Christmas issue. In the meantime, you are entitled to any four of the hint sheets listed below - as long as you enclose a stamped addressed envelope.

Bards Tale 1, 2 & 3, Faery Tale, Hitchhikers Guide, Castle of Terror, Adventureland, Pirate Adventure, Pawn, Borrowed Time, Never Ending Story, Zzzzzzz, Zork 1, 2 & 3, Deja Vu, Dracula, Fish.

Psst! The Official **Adventurers Realm Hint Book** is in the works - should be available before Christmas!!

- Stay tuned for more details. -

Game: Indy
For: Kevin
Help: To get past the final trial, click on the opposite ledge directly across the ravine as soon as Indy walks through the door. He will walk smoothly across. Don't walk him up and down the left hand ledge. If you do, he will fall when you try to walk to the other side.

Game: Indy
For: Spaceflight
Help: Indy cannot pass the grate and enter the crypt directly. He must first solve a series of puzzles. Have you noticed that the torch on the wall is stiff? A good start

Problems, problem & more problems
(or the troubled adventurers Dept.)

Greg Pahek of Mildura in Victoria is really troubled by *Police Quest*, and would like some general hints and tips.

Mr J.W.Knight of Geraldton in Western Australia is stuck in a game called *Shifting Sands*. A particular Immortal Cobra is blocking his path. Quite a snaky problem, eh?

Then we have David Marjanovic (Revesby, NSW) who having just solved *Space Quest I* thanks to solutions in the Realm, is stuck in a couple more games. First up in *Zak McKracken*; where do you get the lighter? Then in *Manhunter - New York*, what do you do in the church, and how do you get into the museum?

Giganoid is a game troubling Chris Atkin of Narrabri in NSW. He wants to know how to get past the gatekeeper on level 25.

Mudness L Bauld (!) of Edgeworth, NSW is stuck in *The Temple Curse*. He seems attracted by a ring embedded in flint in a red room and wants to know how to get it! Mudness also would like to know what you have to do in the sand dungeon.

Sierra games are troubling Alastair Edginton of Mitcham in Victoria. In *Space Quest II*, after climbing down into the ravine on the rope, how do you light your way through the cave, and how do you get past the beaver that is in there. Then in *Hero's Quest*, Alastair is not much of a hero because he cannot work out the magic formula from the rock in the Peace.

Chris Giles wrote in asking for an *Indiana Jones* hint sheet. Well, unfortunately there isn't one. Chris would like some tips with the castle (3rd level).

Darren Bourke of Monegeetta (where?) in Victoria is desperate for hints in *Deja Vu II*. He wants to know how to get into the morgue, or even to find out where to use the safety deposit key, Mercedes key, and the strange key from the telephone.

Finally, Michael Bathols of Narrogin in W.A. is stuck in *Demon's Winter*. A certain riddle about a spell is stretching his brain... A spectral priest utters a chant power, divinity, spirit,....and awaits the final word of the spell.

is to climb up through the manhole, walk left to where the couple is and look at the wine bottle then pick up. Go to the fountain and fill it with water. Come down again and use the bottle with the torch. To get into Henry's house, first pull the bookcase. Examine it carefully to find the sticky tape. Go back to Indy's lab and use the sticky tape with the jar. There is more to it than meets the eye....

Game: Zak McKracken
For: Ben Del Fabbro
Help: To get up to Mars, Zak needs the yellow crystal. This comes in two parts (crystal shards) one of which is given to you by Annie, the other can be found in the Mayan pyramid (through the jungle in Mexico) To fuse the shards, first obtain the flag pole from outside the police station (setting the hay on fire helps in this section). Then, take both Zak and Annie to London and get Annie to give the whiskey to the guard. Use the wire cutters on the fence, walk to altar at Stonehenge, stick the flagpole in and get Annie to read the scroll. Then take the yellow crystal to the witch doctor in Africa.

Game: Tass Times in Tone Town
For: Natalie Paine
From: Justin Prime
Help: To get the metal card, buy a pet, Blobo, leave the shop and go N.W.N.W. The editor's name is Nuyu (it can be found in the opening titles). To use the terminal, turn it on (and the printer) and just follow the instructions. Snarlbane is inside the silver painted jar (after a Red Devil is put in it).

Game: Leisure Suit Larry II
For: Jerry Kushnir
From: Shalom Baker
Help: While sitting next to Ken, give Ken the pamphlet (that you got from the airport counter), get airsick bag, get up and go to the rear section, get parachute, wear parachute, look exit door, use bobby pin (that was in the gravy) on lock, pull handle, open door, use parachute on the way down....

Clever Contacts

Two more to add to the already extensive list of clever contacts. Enclose a stamped addressed envelope when writing to one.

➦Jozsef Toth of 11/8 Garnett Place in Balga, W.A. 6061 would like to offer help for *It Came From the Desert* and *The Lords of Time*.

➦Martin McLaren of 39 Jones Crescent, Rosanna, Vic 3084 is offering help with *Pool of Radiance* and *Bards Tale III*.

The Dungeon by Kamikaze Andy

➦Big news this month is the imminent release of *Chaos Strikes Back* on the Amiga. This new data disk for the RPG classic *Dungeon Master* features 10 new monster-packed levels, as your brave party of adventurers attempt to destroy Lord Chaos once and for all. Although most of the graphics in *Chaos* are similar to *Dungeon Master*, the creators of the game have included many new puzzles and those dreaded worms, and much more! Other features include a hint oracle, and a character editor (which allows you to change the appearances of your characters, but not the abilities). *Chaos Strikes Back* will require 1 meg to run, and although you needn't have played *Dungeon Master* to play this game, it is advisable that you do so because *Chaos* is much harder than its predecessor. *Megafortress* is an unusual entry into the RPG scene; unusual in that it is also something of a flight simulator! Your quest (or mission) is to penetrate Soviet airspace and destroy the new Star Wars installation deep in Mother Russia, using a B52 bomber armed to the hilt with all the latest weaponry and targeting systems, including stealth armour! *Megafortress* can be classified as part RPG because of its unusual premise and because of the strong storyline. Available for the Amiga soon!

Another Amiga entry is *Dragonstrike*, from SSI. This is another unusual RPG,

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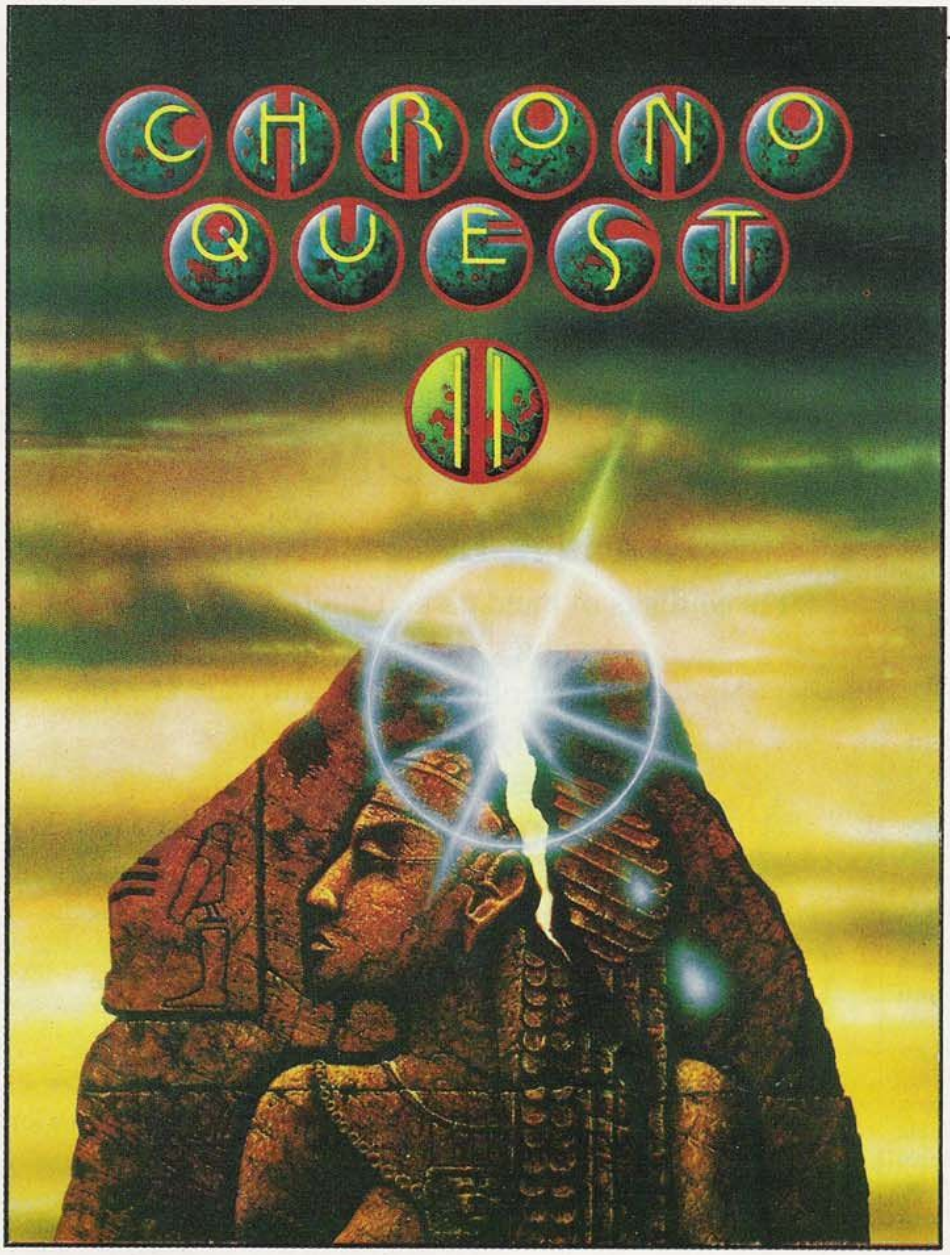

➦Ever spent the better part of an afternoon looking for a shop that you thought you roughly knew the location of? Well, Psygnosis' new graphic adventure game, *Chrono Quest II*, will strike a familiar chord for such forgetful readers.

Any new re-lease by Psygnosis is usually worth looking at for the stunning graphics if nothing else. This one, well, the graphics (which are mostly still-screen) aren't too bad, but they won't have you waking up Dali to tell him the news.

The situation follows on from *Chrono Quest I*, which wasn't exactly a high-profile game, at least by Psygnosis's standards. If you had the adventure/mystery-playing skills to complete installment one of our series you would have found yourself with a time machine, playing a game of chasies through time with the nasty piece of works who popped off dear old Dad.

Part II finds you a long time from home. Explora, the time-machine is malfunctioning, and you can't get the NRMA on the phone. It's a situation that will send shivers down the spine of us arcade blasters. Yes, you're going to have to do some careful thinking.There are two different ways you can travel. Firstly you can move geographically, forwards and backwards along set paths - just click arrow icons to take you to new screens. There are usually between three and five screens on each path. Be warned, some lead to death (though you can only find out by trial-and-error, so there's really no point in warning you) and some, like the cave in Time Stage 2 appear to be a dead end, but are not. (That's about the only hint I'm going to give you!).

Along the way you can examine your surroundings and pick up or 'souvenir' anything useful that happens to be conveniently lying around. Metal is particularly valuable because it powers the time machine. This allows you to travel to other Time Stages, of which there are thirteen.

How do you finish, you might ask? Well, it's got something to do with working out a logical order to travel through all the different Time Stages. This may sound exciting and/or challenging, but not much happens in most of the stages. This is where the game will have it's appeal to the adventurer's, whereas other gamers will probably lose interest.

A problem with the game concerns the conversations you can have with some of the characters. There must be something important that they can reveal (or give to you), but for me this always seems to be that they have appointed themselves my executioner. Many adventurers like the added 'realism' that conversations add to games, but I usually find they detract from the gameplay.

Another thing that doesn't help is the fact that the 'give' function seems to work in mysterious ways, and the manual, which is brief and not overly helpful, certainly isn't of any help here. There is also some poor translation of some of the messages (and none at all with the signs attached to pointers!). The save function is also frustrating, as you need a whole disk just to save one game.

This may be the game for an experienced adventurer looking for new worlds to conquer, but it's not the place to start your adventuring days. There just isn't enough happening to keep the average gamer interested, especially once you've seen all the different Time Stages. Most games work on frustration. This one has it's own sort, and I hope you've gained some idea of it. ❑

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Ratings:	Overall Gameplay
Graphics: 75%	(Adventurers): 80%
Sound: 55%	(Others):65%

because *Dragonstrike* is also a flight simulator, but this time you fly Dragons instead of B52's. Guide your mighty dragon against evil dragons that threaten your kingdom in a series of quests included in the game. *Dragonstrike* features smooth animation, and great vector-filled graphics. The programmers are Westwood Associates, makers of the upcoming *Battletech II* (Amiga and C64) and *Mechwarrior* (Amiga).

Sequels seem to be getting as popular in computer games as they are in movies. Watch out for *Secret of the Silver Blades*, another sequel from SSI in its AD&D RPG series. This game is available now on the C64, and will be converted to the Amiga. Sierra also have *Heroes Quest II:Trial By Fire* soon to appear on the Amiga, as well as *Kings Quest V* and *Space Quest IV*. Incidentally, *Kings Quest V* along with *LOOM* (Lucasfilm) are two titles soon to appear on the new Amiga CD-TV system.

Accolade is the latest company to enter the RPG adventure arena with a whole bunch of new Amiga releases. Already out is *The Third Courier*, a spy game set in Berlin. You play the role of a CIA agent codenamed Moondancer, and it is your mission to seek out a rogue agent who is planning to defect to the east. Coming soon is *Search For The King*, a humorous graphic adventure that takes you in search for the King of Rock'n'Roll.

Interplay, makers of the *Bards Tale* series, have just released *Lord of the Rings Volume 1*, a completely new game based on the works of Tolkien. It's available now on the C64, with a version available for the Amiga coming soon. Interplay have also released *Dragon Wars* for the Amiga, a huge RPG set in the realm of Oceania. ❑

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